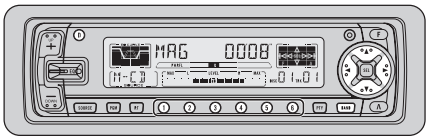
Service Manual

DEH-P700R/UC



ORDER NO.
CRT2373

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH RDS TUNER

DEH-P700R UC

DEH-P7000R UC

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-P7050 ES

COMPACT disc DIGITAL AUDIO

- **See the separate manual CX-916(CRT2300) for the CD mechanism description, disassembly and circuit description.**
- **The CD mechanism employed in this model is one of S8 series.**
- **This device employs an inverter as the power supply for EL. The inverter has an output voltage reach approximately 500 volts(AC). Utmost care should be used not to suffer from a possible electric shock, accordingly.**
- **When executing an operation, be aware that the in around IC651 can become quite hot to the touch.**

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K-ZZD. FEB. 1999 Printed in Japan

● **CD Player Service Precautions**

1. For pickup unit(CXX1285) handling, please refer to"Disassembly"(see page 86).
   During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a short pin).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.
3. Please checking the grating after changing the service pickup unit(see page 72).

1. SAFETY INFORMATION

CAUTION

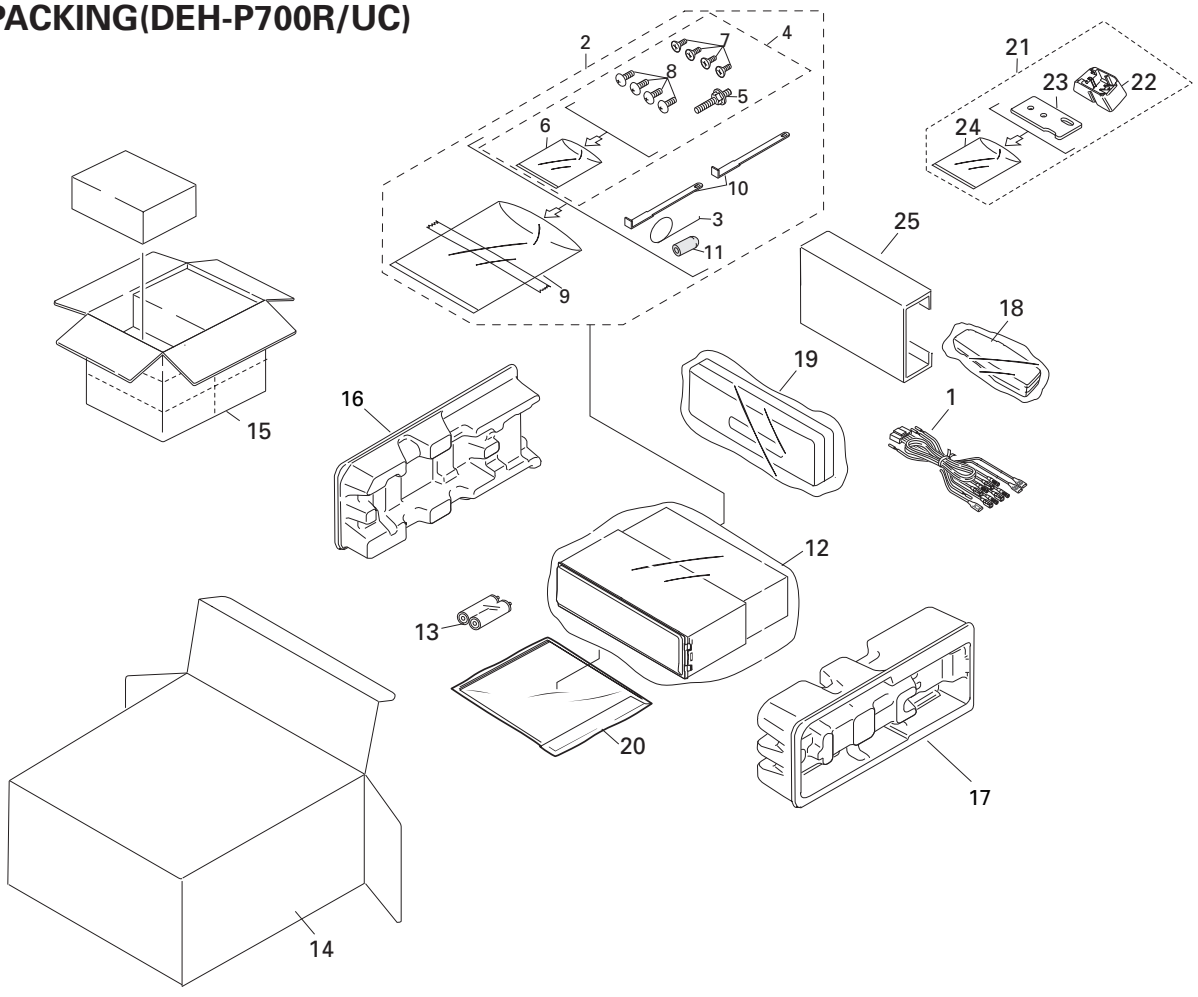
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING(DEH-P700R/UC)



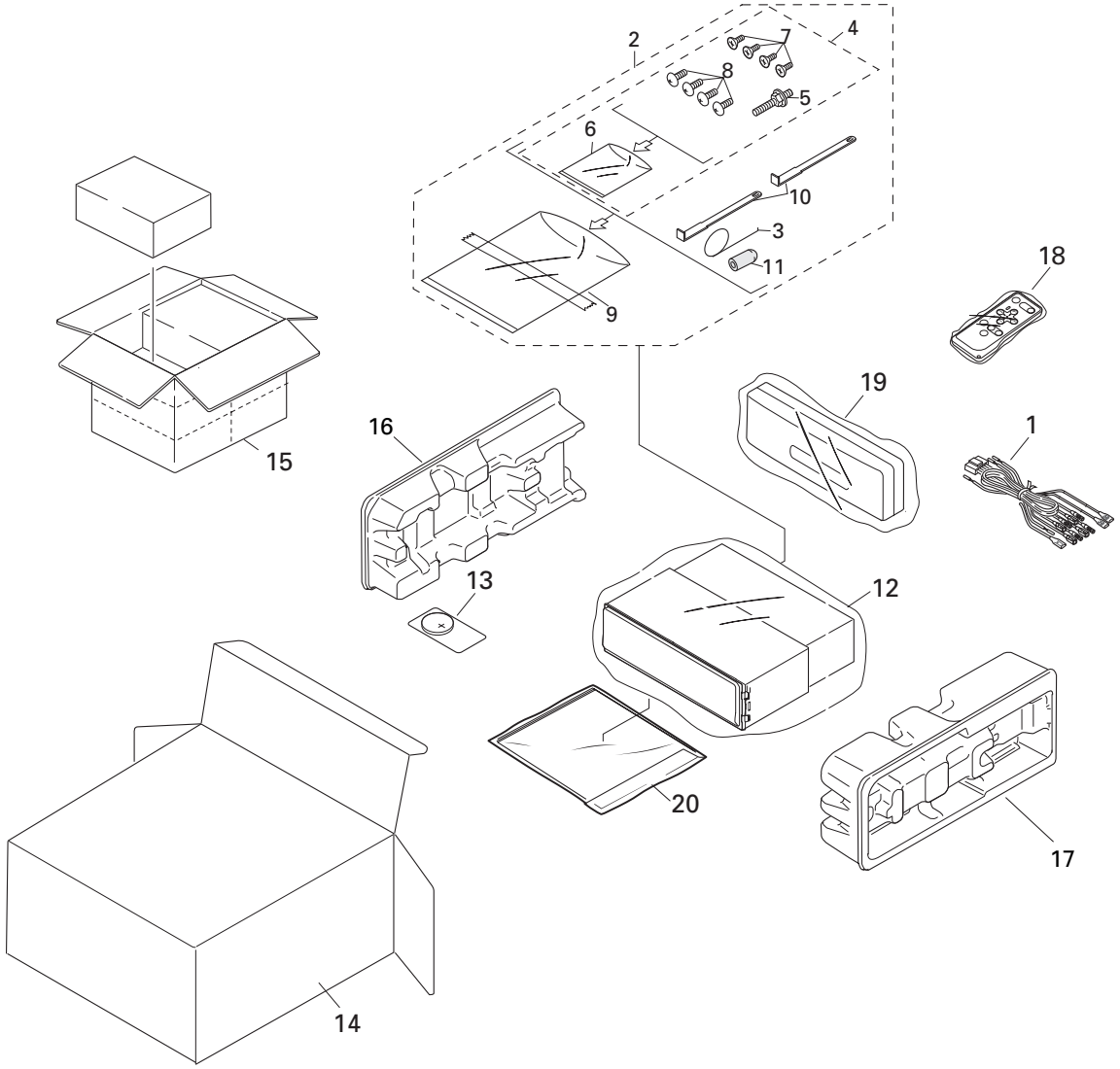
NOTE:

- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

● PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Cord Assy	CDE5829
*	2	Accessory Assy	CEA2395
	3	Spring	CBH1650
*	4	Screw Assy	CEA2396
	5	Screw	CBA1002
*	6	Polyethylene Bag	CEG-127
	7	Screw	CRZ50P090FMC
	8	Screw	TRZ50P080FMC
*	9	Polyethylene Bag	CEG-158
	10	Handle	CNC5395
	11	Bush	CNV3930
	12	Polyethylene Bag	CEG1173
	13	Battery	CEX1006
	14	Carton	CHG3749
	15	Contain Box	CHL3749
	16	Protector	CHP2101
	17	Protector	CHP2102
	18	Remote Control Assy	CXB3875
	19	Case Assy	CXB3520
	20-1	Owner's Manual (English, French)	CRD2906
	20-2	Installation Manual (English, French)	CRD2907
*	20-3	Warranty Card	CRY1070
	20-4	Polyethylene Bag	CEG1116
*	20-5	Label	CRW1343
	21	Base Assy	CEA2426
*	22	Base	CNS5031
*	23	Sheet	CZA3371
	24	Polyethylene Bag	CZE3188
	25	Inner Box	CHW1759

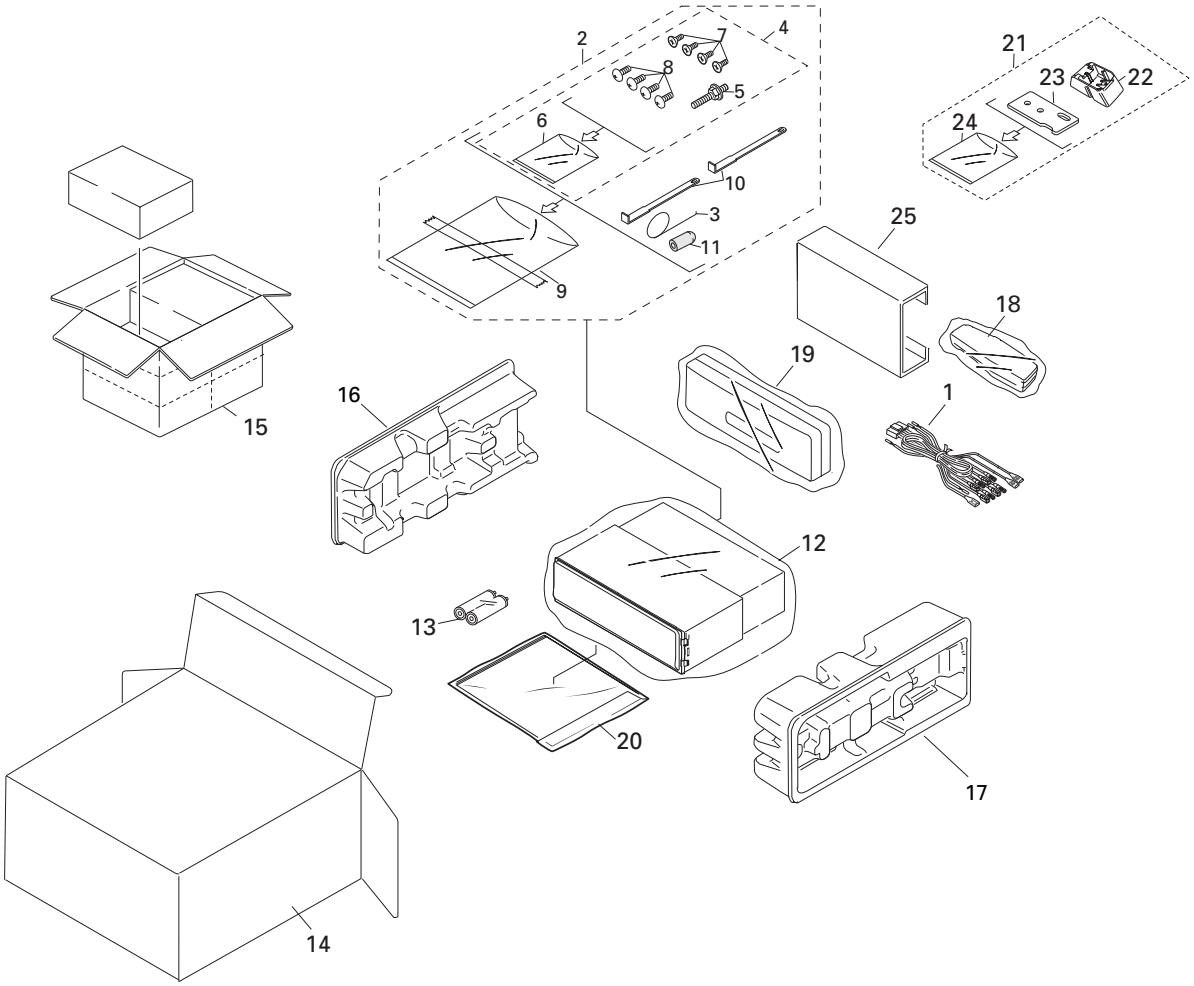
2.2 PACKING(DEH-P7000R/UC)



● PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Cord Assy	CDE5827
*	2	Accessory Assy	CEA2395
	3	Spring	CBH1650
*	4	Screw Assy	CEA2396
	5	Screw	CBA1002
*	6	Polyethylene Bag	CEG-127
	7	Screw	CRZ50P090FMC
	8	Screw	TRZ50P080FMC
*	9	Polyethylene Bag	CEG-158
	10	Handle	CNC5395
	11	Bush	CNV3930
	12	Polyethylene Bag	CEG1173
	13	Battery	CEX1030
	14	Carton	CHG3748
	15	Contain Box	CHL3748
	16	Protector	CHP2101
	17	Protector	CHP2102
	18	Remote Control Unit	CXB3455
	19	Case Assy	CXB3520
	20-1	Owner's Manual (English, French)	CRD2908
	20-2	Installation Manual (English, French)	CRD2909
*	20-3	Card	ARY1048
	20-4	Polyethylene Bag	CEG1116
*	20-5	Label	CRW1343

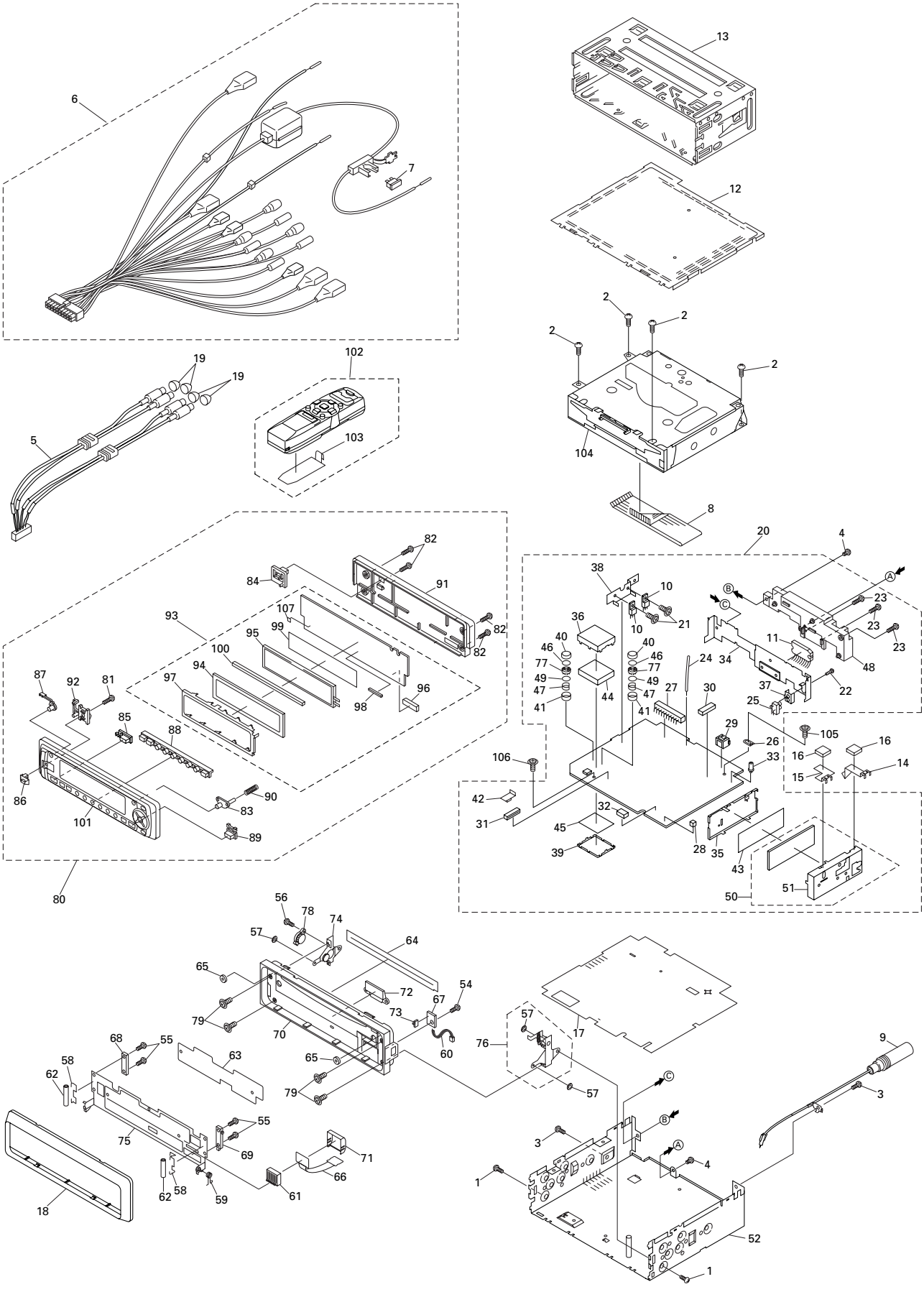
2.3 PACKING(DEH-P7050/ES)



● PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Cord Assy	CDE5828
*	2	Accessory Assy	CEA2395
	3	Spring	CBH1650
*	4	Screw Assy	CEA2396
	5	Screw	CBA1002
*	6	Polyethylene Bag	CEG-127
	7	Screw	CRZ50P090FMC
	8	Screw	TRZ50P080FMC
*	9	Polyethylene Bag	CEG-158
	10	Handle	CNC5395
	11	Bush	CNV3930
	12	Polyethylene Bag	CEG-162
	13	Battery	CEX1006
	14	Carton	CHG3747
	15	Contain Box	CHL3747
	16	Protector	CHP2101
	17	Protector	CHP2102
	18	Remote Control Assy	CXB3875
	19	Case Assy	CXB3520
	20-1	Owner's Manual (English, Spanish, Portuguese)	CRD2903
	20-2	Owner's Manual (Arabic, Chinese)	CRD2904
	20-3	Installation Manual (English, Spanish, Portuguese, Arabic, Chinese)	CRD2905
	20-4	Polyethylene Bag	CEG1116
	21	Base Assy	CEA2426
*	22	Base	CNS5031
*	23	Sheet	CZA3371
	24	Polyethylene Bag	CZE3188
	25	Inner Box	CHW1759

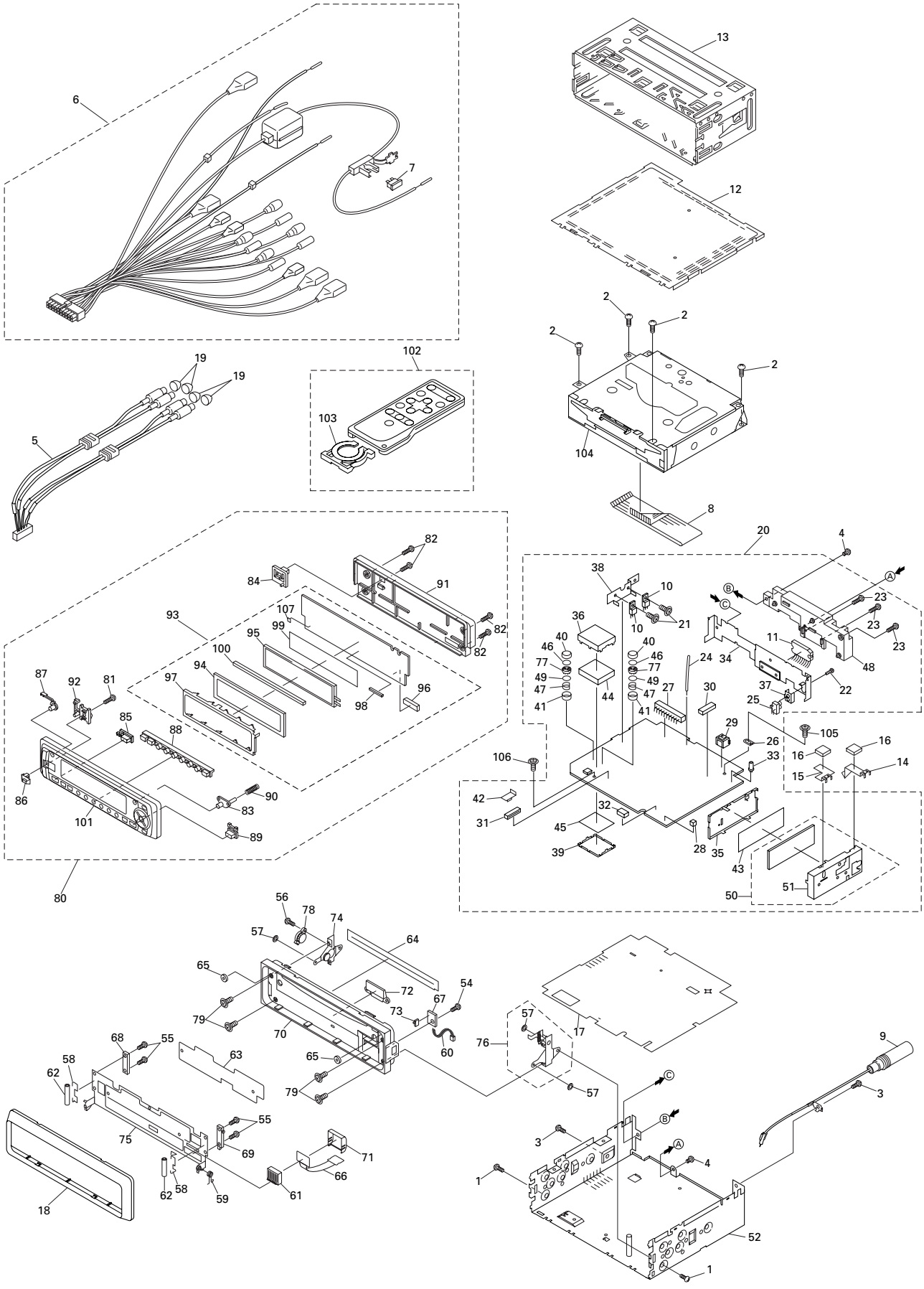
2.4 EXTERIOR(DEH-P700R/UC)



● EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.
1	Screw	BMZ30P040FMC
2	Screw	BSZ26P060FMC
3	Screw	BSZ30P060FMC
4	Screw	BSZ30P100FMC
5	Cord Assy	CDE5821
6	Cord Assy	CDE5829
7	Fuse(10A)	CEK1136
8	Connector	CDE6049
9	Antenna Cable	CDH1266
10	Transistor(Q954,991)	2SD2396
11	IC(IC551)	PAL005A
12	Case	CNB2508
13	Holder	CNC6798
14	Holder	CNC8300
15	Holder	CNC8357
16	Spacer	CNM4913
17	Insulator	CNM6075
18	Panel	CNS5148
19	Cap	CNV2680
20	Tuner Amp Unit	CWM6188
21	Screw	ASZ26P080FMC
22	Screw	BPZ26P060FMC
23	Screw	BSZ26P160FMC
24	Clamper	CEF1009
25	Pin Jack(CN431)	CKB1028
26	Terminal(CN501)	CKF1059
27	Plug(CN951)	CKM1296
28	Plug(CN652)	CKS-783
29	Connector(CN411)	CKS3408
30	Connector(CN433)	CKS3602
31	Connector(CN681)	CKS3838
32	Connector(CN651)	CKS4077
33	Mini Pin Jack(CN502)	CKX1046
34	Panel	CNB2375
35	Holder	CNC7533
36	Case	CNC8138
37	Holder	CNC8298
38	Holder	CNC8299
39	Case	CNC8301
40	Case	CNC8376
41	Case	CNC8377
42	Heat Sink	CNC8437
43	Insulator	CNM5967
44	Insulator	CNM6249
45	Insulator	CNM6250
46	Insulator	CNM6298
47	Insulator	CNM6299
48	Heat Sink	CNR1550
49	Insulator	CNV5816
50	FM/AM Tuner Unit	CWE1501
51	Holder	CNC7532
52	Chassis Unit	CXB3306
53	•••••	
54	Screw	BPZ20P060FMC
55	Screw	CBA1082
56	Screw	CBA1176
57	Washer	CBF1001
58	Spring	CBH2063
59	Spring	CBH2204
60	Cord	CDE5800
61	Connector	CKS2780
62	Roller	CLA3386
63	Sheet	CNM6109
64	Cover	CNM6118
65	Cushion	CNM6376
66	PCB	CNP5383
67	PCB	CNP5430
68	Holder	CNS5157
69	Holder	CNS5165
70	Panel	CNS5280
71	Cover	CNS5389
72	Lighting Conductor	CNV5540
73	Switch(S651)	CSN1027
74	Holder Unit	CXB3049
75	Holder Unit	CXB3050
76	Holder Unit	CXB3051
77	Coil(L652,L653)	CTH1228
78	Damper Unit	CXB3180
79	Screw	IMS20P040FZK
80	Detach Grille Assy	CXB3684
81	Screw	BPZ20P060FMC
82	Screw	BPZ20P080FZK
83	Button(OPEN)	CAC5804
84	Button(EJECT)	CAC5805
85	Button(SOURCE)	CAC5806
86	Button(EQ)	CAC5808
87	Button(DISP)	CAC5809
88	Button(1-6)	CAC5811
89	Button(BAND)	CAC5936
90	Spring	CBH2205
91	Cover	CNS5146
92	Holder	CNV5537
93	Keyboard Unit	CWM6196
94	LCD	CAW1519
95	EL	CEL1592
96	Connector(CN901)	CKS2733
97	Holder	CNC8157
98	Spacer	CNM6379
99	Double Sided Tape	CNM6380
100	Connector	CNV5539
101	Grille Unit	CXB4090
102	Remote Control Assy	CXB3875
103	Battery Cover	CNS5032
104	CD Mechanism Module	CXK5200
105	Screw	ISS26P055FUC
106	Screw	CBA1492
107	Spacer	CNM6421

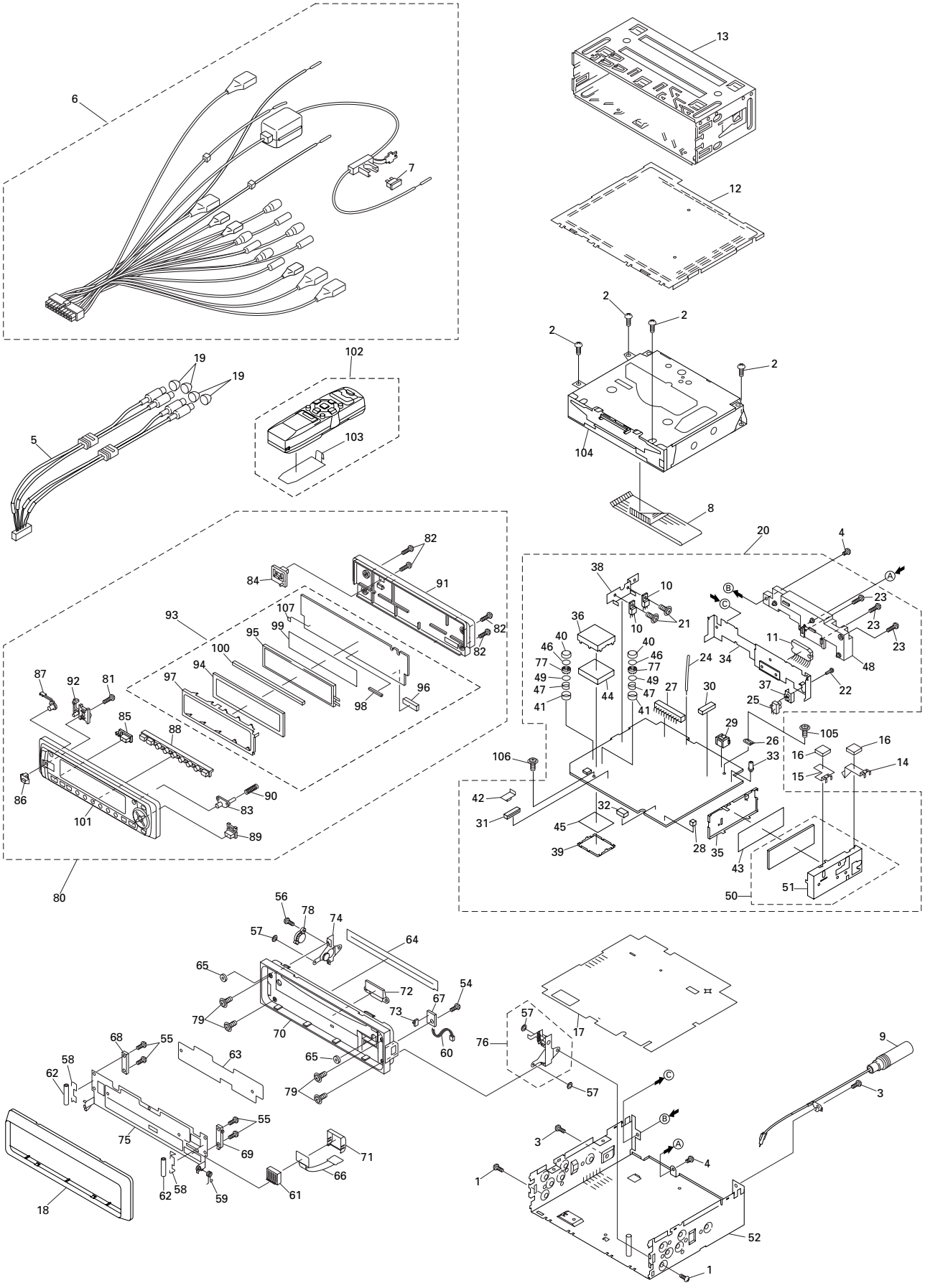
2.5 EXTERIOR(DEH-P7000R/UC)



● EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	BMZ30P040FMC
	2	Screw	BSZ26P060FMC
	3	Screw	BSZ30P060FMC
	4	Screw	BSZ30P100FMC
	5	Cord Assy	CDE5821
	6	Cord Assy	CDE5827
	7	Fuse(10A)	CEK1136
	8	Connector	CDE6049
	9	Antenna Cable	CDH1266
	10	Transistor(Q954,991)	2SD2396
	11	IC(IC551)	PAL005A
	12	Case	CNB2508
	13	Holder	CNC6798
	14	Holder	CNC8300
	15	Holder	CNC8357
	16	Spacer	CNM4913
	17	Insulator	CNM6075
	18	Panel	CNS5148
	19	Cap	CNV2680
	20	Tuner Amp Unit	CWM6189
	21	Screw	ASZ26P080FMC
	22	Screw	BPZ26P060FMC
	23	Screw	BSZ26P160FMC
	24	Clamper	CEF1009
	25	Pin Jack(CN431)	CKB1028
	26	Terminal(CN501)	CKF1059
	27	Plug(CN952)	CKM1294
	28	Plug(CN652)	CKS-783
	29	Connector(CN411)	CKS3408
	30	Connector(CN433)	CKS3602
	31	Connector(CN681)	CKS3838
	32	Connector(CN651)	CKS4077
	33	Mini Pin Jack(CN502)	CKX1046
	34	Panel	CNB2376
	35	Holder	CNC7533
	36	Case	CNC8138
	37	Holder	CNC8298
	38	Holder	CNC8299
	39	Case	CNC8301
	40	Case	CNC8376
	41	Case	CNC8377
	42	Heat Sink	CNC8437
	43	Insulator	CNM5967
	44	Insulator	CNM6249
	45	Insulator	CNM6250
	46	Insulator	CNM6298
	47	Insulator	CNM6299
	48	Heat Sink	CNR1550
	49	Insulator	CNV5816
	50	FM/AM Tuner Unit	CWE1501
	51	Holder	CNC7532
	52	Chassis Unit	CXB3306
	53	•••••	
	54	Screw	BPZ20P060FMC
	55	Screw	CBA1082
	56	Screw	CBA1176
	57	Washer	CBF1001
	58	Spring	CBH2063
	59	Spring	CBH2204
	60	Cord	CDE5800
	61	Connector	CKS2780
	62	Roller	CLA3386
	63	Sheet	CNM6109
	64	Cover	CNM6118
	65	Cushion	CNM6376
	66	PCB	CNP5383
	67	PCB	CNP5430
	68	Holder	CNS5157
	69	Holder	CNS5165
	70	Panel	CNS5280
	71	Cover	CNS5389
	72	Lighting Conductor	CNV5540
	73	Switch(S651)	CSN1027
	74	Holder Unit	CXB3049
	75	Holder Unit	CXB3050
	76	Holder Unit	CXB3051
	77	Coil(L652,L653)	CTH1228
	78	Damper Unit	CXB3180
	79	Screw	IMS20P040FZK
	80	Detach Grille Assy	CXB3685
	81	Screw	BPZ20P060FMC
	82	Screw	BPZ20P080FZK
	83	Button(OPEN)	CAC5804
	84	Button(EJECT)	CAC5805
	85	Button(SOURCE)	CAC5806
	86	Button(EQ)	CAC5808
	87	Button(DISP)	CAC5809
	88	Button(1-6)	CAC5811
	89	Button(BAND)	CAC5936
	90	Spring	CBH2205
	91	Cover	CNS5146
	92	Holder	CNV5537
	93	Keyboard Unit	CWM6196
	94	LCD	CAW1519
	95	EL	CEL1592
	96	Connector(CN901)	CKS2733
	97	Holder	CNC8157
	98	Spacer	CNM6379
	99	Double Sided Tape	CNM6380
	100	Connector	CNV5539
	101	Grille Unit	CXB4091
	102	Remote Control Unit	CXB3455
	103	Cover	CNS4948
	104	CD Mechanism Module	CXK5200
	105	Screw	ISS26P055FUC
	106	Screw	CBA1492
	107	Spacer	CNM6421

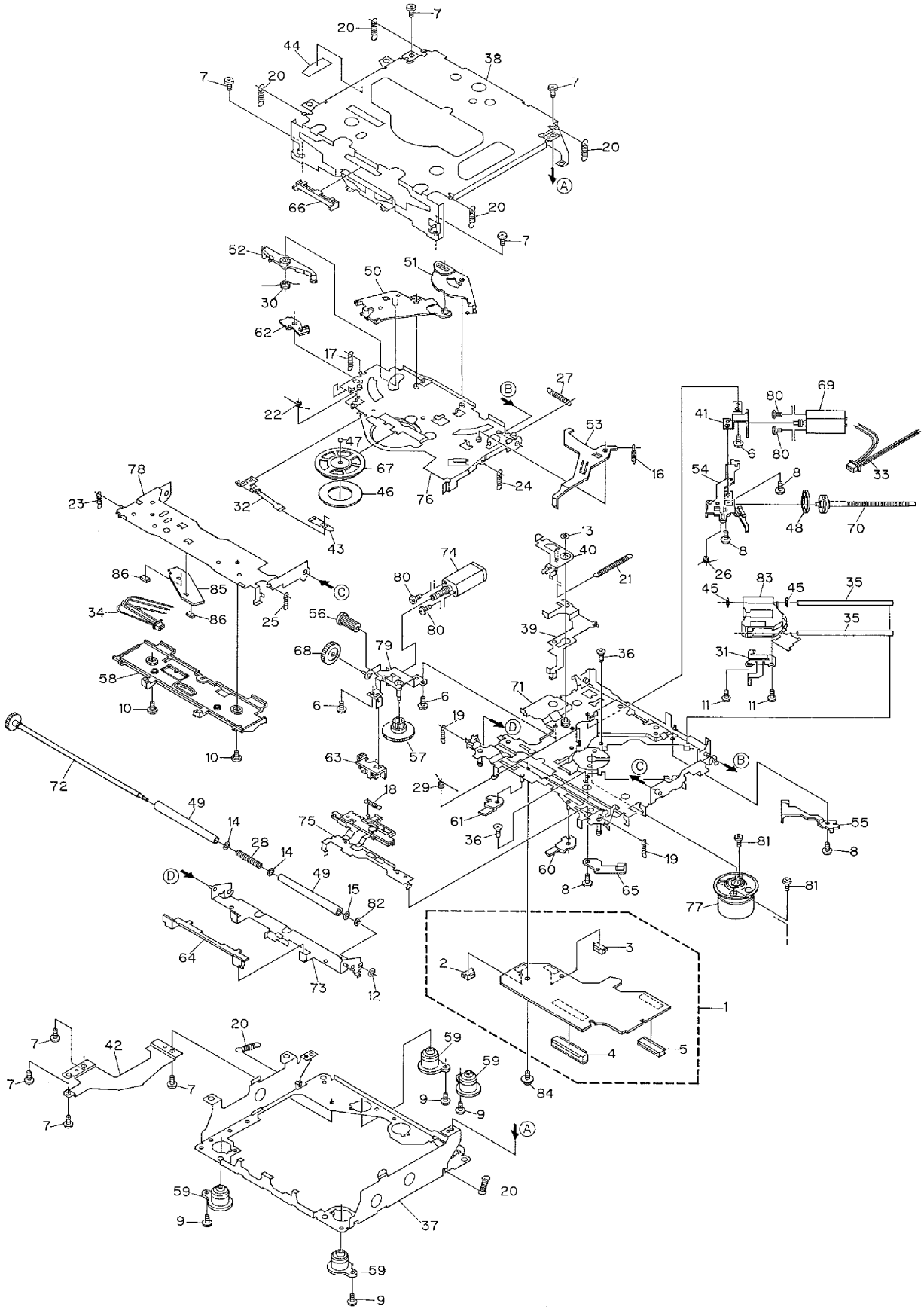
2.6 EXTERIOR(DEH-P7050/ES)



● EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	BMZ30P040FMC
	2	Screw	BSZ26P060FMC
	3	Screw	BSZ30P060FMC
	4	Screw	BSZ30P100FMC
	5	Cord Assy	CDE5821
	6	Cord Assy	CDE5828
	7	Fuse(10A)	CEK1136
	8	Connector	CDE6049
	9	Antenna Cable	CDH1266
	10	Transistor(Q954,991)	2SD2396
	11	IC(IC551)	PAL005A
	12	Case	CNB2508
	13	Holder	CNC6798
	14	Holder	CNC8300
	15	Holder	CNC8357
	16	Spacer	CNM4913
	17	Insulator	CNM6075
	18	Panel	CNS5148
	19	Cap	CNV2680
	20	Tuner Amp Unit	CWM6187
	21	Screw	ASZ26P080FMC
	22	Screw	BPZ26P060FMC
	23	Screw	BSZ26P160FMC
	24	Clamper	CEF1009
	25	Pin Jack(CN431)	CKB1028
	26	Terminal(CN501)	CKF1059
	27	Plug(CN951)	CKM1296
	28	Plug(CN652)	CKS-783
	29	Connector(CN411)	CKS3408
	30	Connector(CN433)	CKS3602
	31	Connector(CN681)	CKS3838
	32	Connector(CN651)	CKS4077
	33	Mini Pin Jack(CN502)	CKX1046
	34	Panel	CNB2375
	35	Holder	CNC7533
	36	Case	CNC8138
	37	Holder	CNC8298
	38	Holder	CNC8299
	39	Case	CNC8301
	40	Case	CNC8376
	41	Case	CNC8377
	42	Heat Sink	CNC8437
	43	Insulator	CNM5967
	44	Insulator	CNM6249
	45	Insulator	CNM6250
	46	Insulator	CNM6298
	47	Insulator	CNM6299
	48	Heat Sink	CNR1550
	49	Insulator	CNV5816
	50	FM/AM Tuner Unit	CWE1501
	51	Holder	CNC7532
	52	Chassis Unit	CXB3306
	53	•••••	
	54	Screw	BPZ20P060FMC
	55	Screw	CBA1082
	56	Screw	CBA1176
	57	Washer	CBF1001
	58	Spring	CBH2063
	59	Spring	CBH2204
	60	Cord	CDE5800
	61	Connector	CKS2780
	62	Roller	CLA3386
	63	Sheet	CNM6109
	64	Cover	CNM6118
	65	Cushion	CNM6376
	66	PCB	CNP5383
	67	PCB	CNP5430
	68	Holder	CNS5157
	69	Holder	CNS5165
	70	Panel	CNS5280
	71	Cover	CNS5389
	72	Lighting Conductor	CNV5540
	73	Switch(S651)	CSN1027
	74	Holder Unit	CXB3049
	75	Holder Unit	CXB3050
	76	Holder Unit	CXB3051
	77	Coil(L652,L653)	CTH1228
	78	Damper Unit	CXB3180
	79	Screw	IMS20P040FZK
	80	Detach Grille Assy	CXB3683
	81	Screw	BPZ20P060FMC
	82	Screw	BPZ20P080FZK
	83	Button(OPEN)	CAC5804
	84	Button(EJECT)	CAC5805
	85	Button(SOURCE)	CAC5806
	86	Button(EQ)	CAC5808
	87	Button(DISP)	CAC5809
	88	Button(1-6)	CAC5826
	89	Button(BAND)	CAC5936
	90	Spring	CBH2205
	91	Cover	CNS5146
	92	Holder	CNV5537
	93	Keyboard Unit	CWM6197
	94	LCD	CAW1518
	95	EL	CEL1592
	96	Connector(CN901)	CKS2733
	97	Holder	CNC8157
	98	Spacer	CNM6379
	99	Double Sided Tape	CNM6380
	100	Connector	CNV5539
	101	Grille Unit	CXB4089
	102	Remote Control Assy	CXB3875
	103	Battery Cover	CNS5032
	104	CD Mechanism Module	CXK5200
	105	Screw	ISS26P055FUC
	106	Screw	CBA1492
	107	Spacer	CNM6421

2.7 CD MECHANISM MODULE

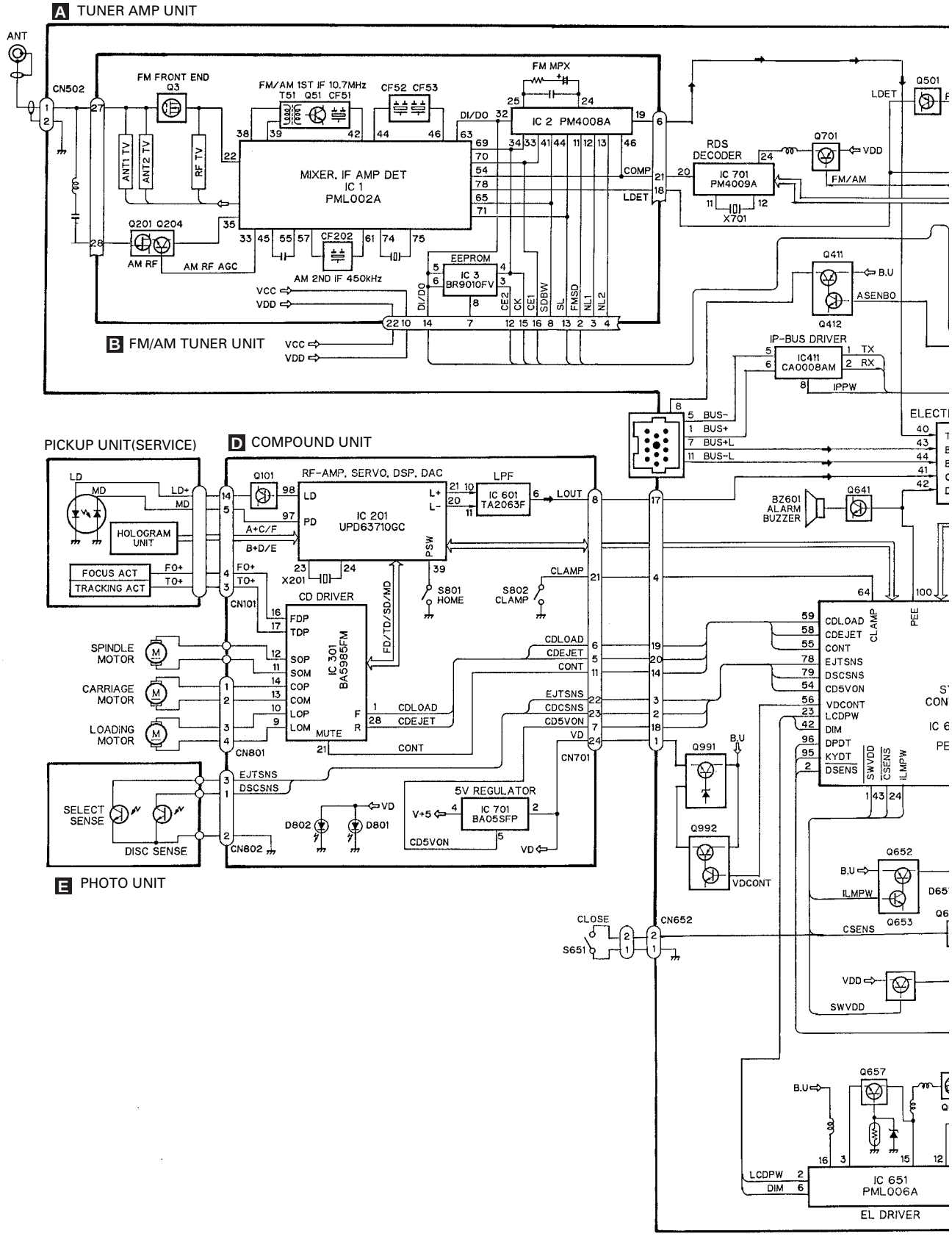


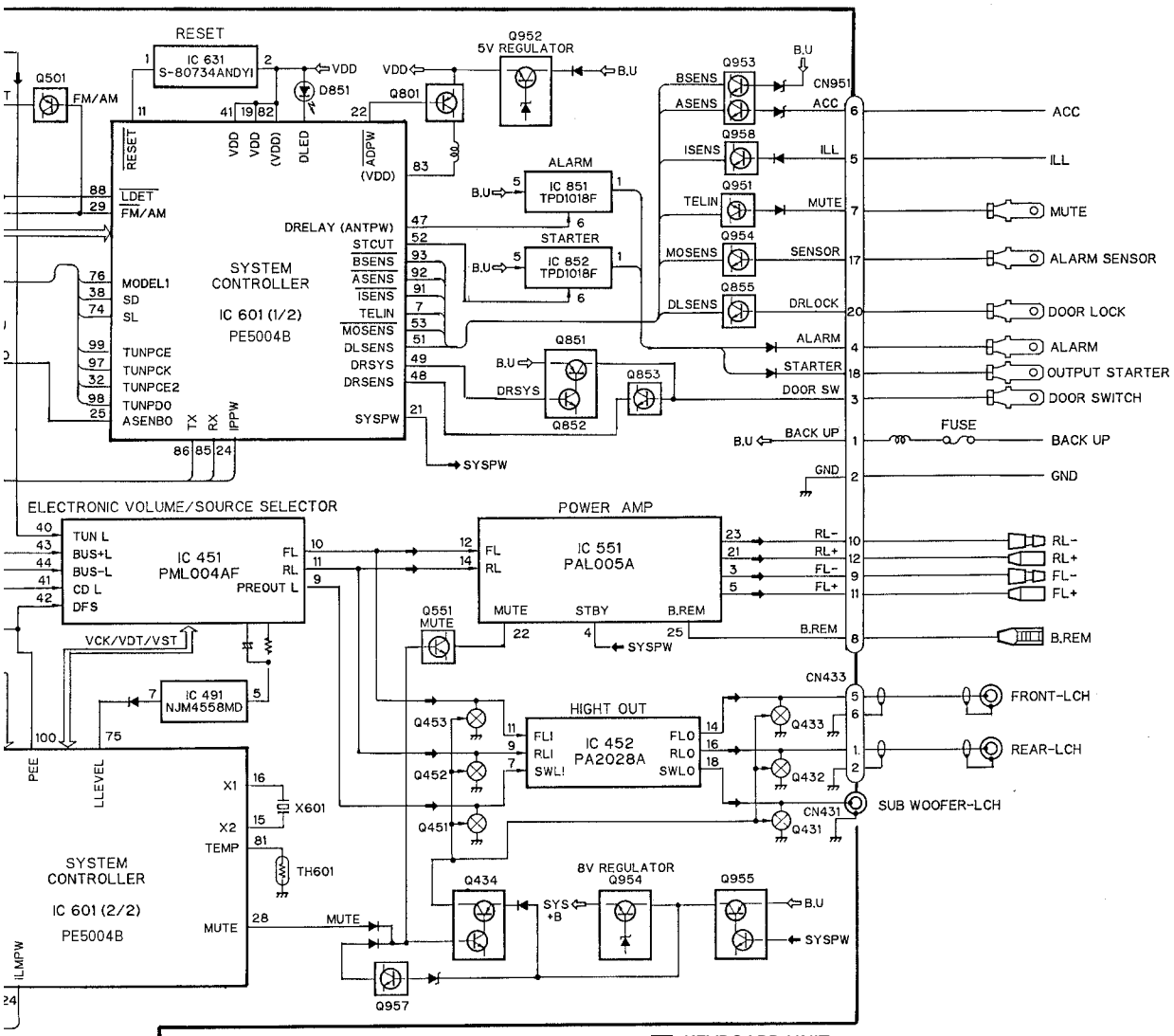
● CD MECHANISM MODULE SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Compound Unit	CWX2235
	2	Connector(CN802)	CKS2192
	3	Connector(CN801)	CKS2193
	4	Connector(CN701)	CKS2773
	5	Connector(CN101)	CKS3486
	6	Screw	BMZ20P030FZK
	7	Screw	BSZ20P040FZK
	8	Screw(M2×3)	CBA1077
	9	Screw(M2×6)	CBA1230
	10	Screw	CBA1243
	11	Screw(M2×4)	CBA1362
	12	Washer	CBF1037
	13	Washer	CBF1038
	14	Washer	CBF1060
*	15	Washer	CBF1075
	16	Spring	CBH2079
	17	Spring	CBH2117
	18	Spring	CBH2278
	19	Spring	CBH2110
	20	Spring	CBH2282
	21	Spring	CBH2114
	22	Spring	CBH2115
	23	Spring	CBH2080
	24	Spring	CBH2118
	25	Spring	CBH2161
	26	Spring	CBH2163
	27	Spring	CBH2189
	28	Spring	CBH2249
	29	Spring	CBH2260
	30	Spring	CBH2262
	31	Spring	CBL1367
	32	Spring	CBL1369
	33	Connector	CDE5531
	34	Connector	CDE5532
	35	Shaft	CLA3304
	36	Screw(M2.6×6)	CBA1458
	37	Frame	CNC7544
	38	Frame	CNC7545
	39	Lever	CNC7546
	40	Arm	CNC7739
	41	Bracket	CNC7798
	42	Plate	CNC8090
	43	Spacer	CNM3315
	44	Sheet	CNM6170
	45	Cushion	CNM6204
	46	Sheet	CNM6215
	47	Ball	CNR1189
	48	Belt	CNT1086
	49	Roller	CNV4509
	50	Arm	CNV5246
	51	Arm	CNV5247
	52	Arm	CNV5248
	53	Arm	CNV5249
	54	Guide	CNV5254
	55	Guide	CNV5255
	56	Gear	CNV5257
	57	Gear	CNV5256
	58	Guide	CNV5869
	59	Damper	CNV5266
	60	Arm	CNV5359
	61	Arm	CNV5360
	62	Arm	CNV5361
	63	Guide	CNV5509
	64	Guide	CNV5510
	65	Holder	CNV5578
	66	Guide	CNV5751
	67	Clamper	CNV5758
	68	Gear	CNV5813
	69	Motor Unit(M1)	CXB2190
	70	Screw Unit	CXB2191
	71	Chassis Unit	CXB2192
	72	Gear Unit	CXB2193
	73	Arm Unit	CXB2194
	74	Motor Unit(M2)	CXB2195
	75	Lever Unit	CXB2553
	76	Arm Unit	CXB2554
	77	Motor Unit(M3)	CXB2562
	78	Arm Unit	CXB2795
	79	Bracket Unit	CXB4071
	80	Screw	JFZ20P025FMC
	81	Screw	JGZ17P025FZK
	82	Washer	YE15FUC
	83	Pickup Unit(Service)(P8)	CXX1285
	84	Screw	IMS26P030FMC
*	85	PCB	CNX2982
	86	Photo-transistor(Q1, 2)	CPT230SX-TU

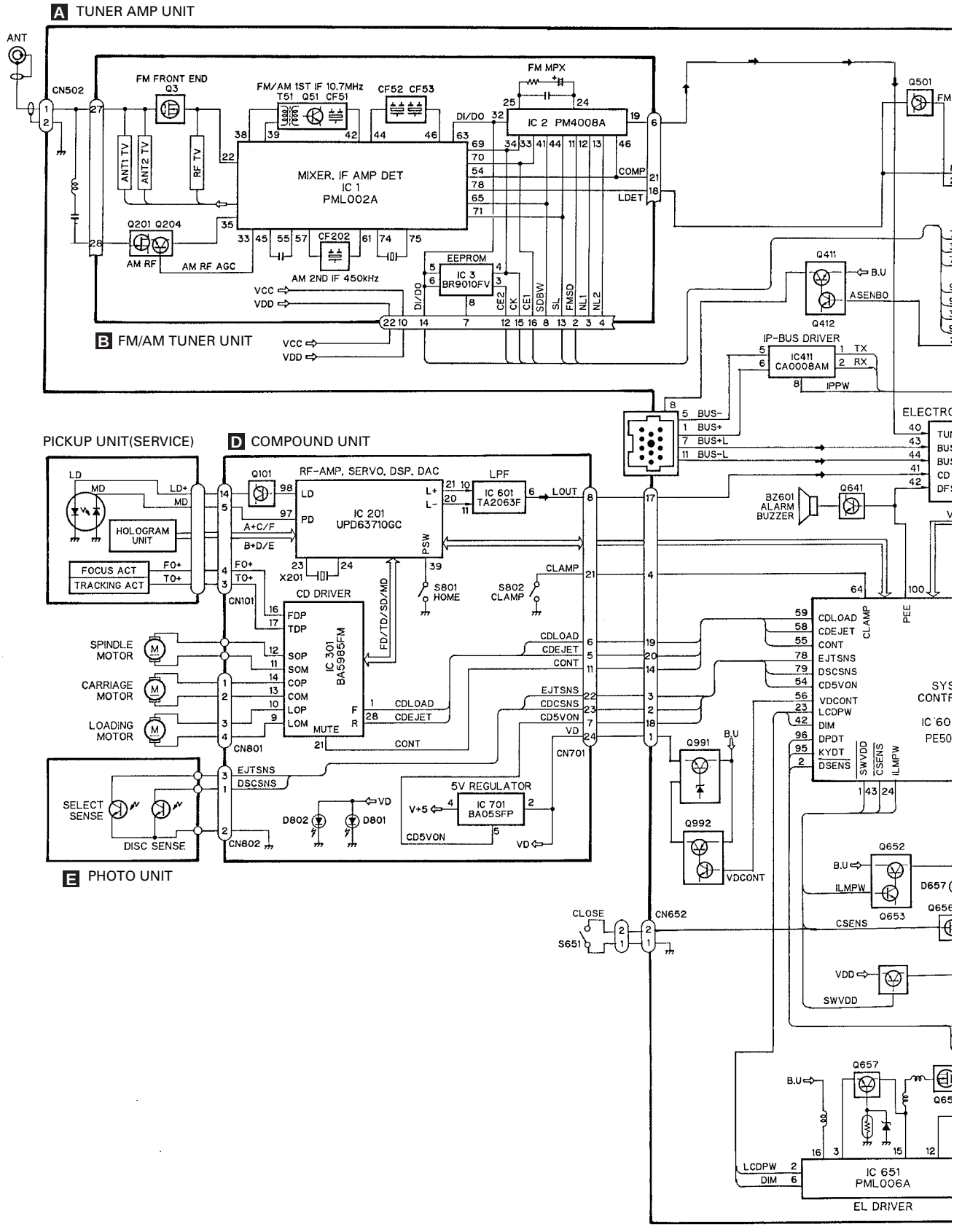
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

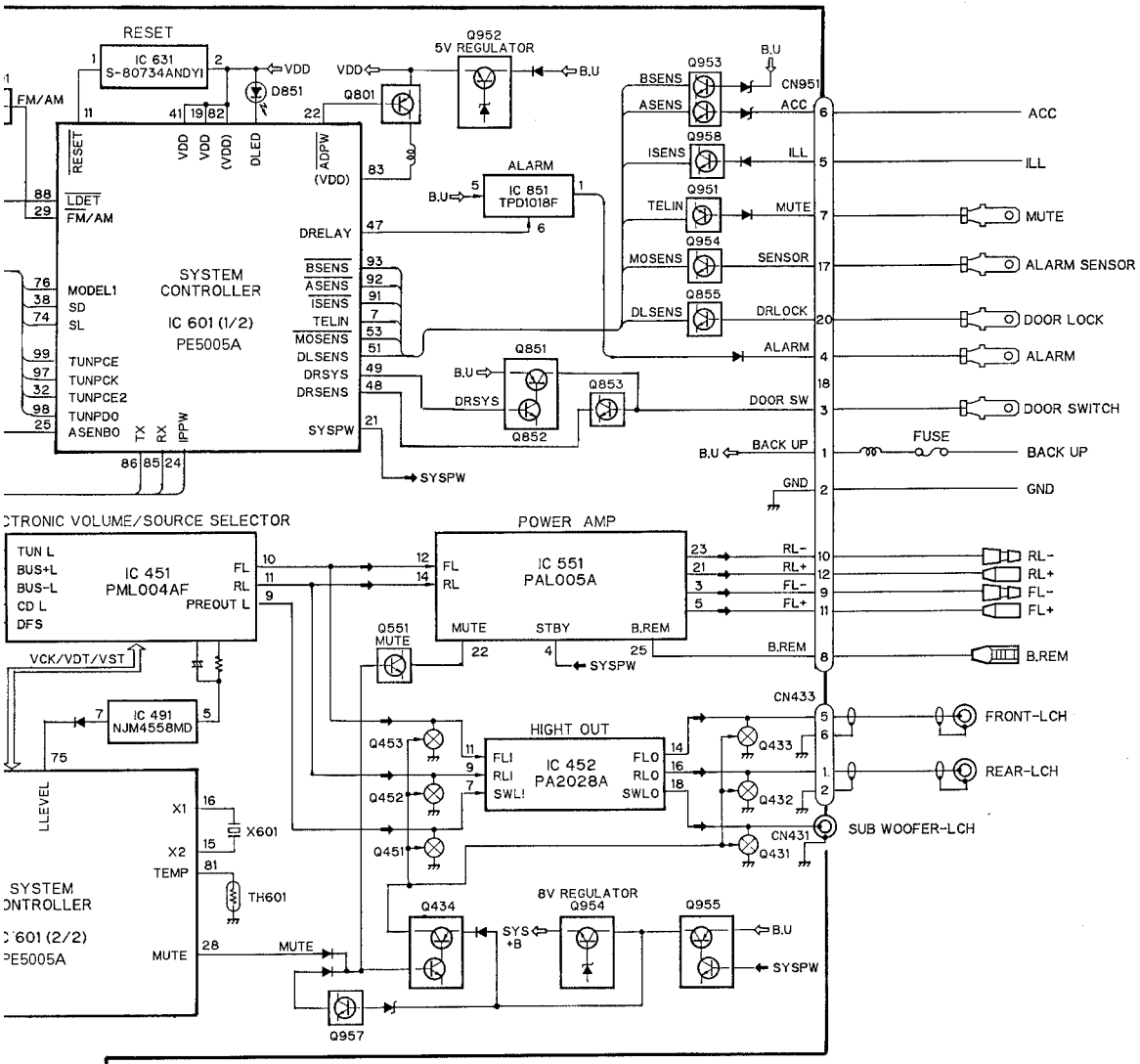
3.1 BLOCK DIAGRAM(DEH-P700R/UC)




RESET
IC 631
S-80734ANDYI
Q501
FM/AM
D851
VDD
Q801
Q952
5V REGULATOR
B.U
SYSTEM
CONTROLLER
IC 601 (1/2)
PE5004B
MODEL1
SD
SL
TUNPCE
TUNPCK
TUNPCE2
TUNPDO
ASENBO
DRELAY (ANTPW)
STCUT
BSENS
ASENS
ISENS
TELIN
MOSENS
DLSENS
DRSYS
DRSENS
SYSPW
ALARM
IC 851
TPD1018F
STARTER
IC 852
TPD1018F
Q851
Q852
Q853
Q953
Q958
Q951
Q954
Q855
CN951
ACC
ILL
MUTE
SENSOR
DRLOCK
ALARM
STARTER
DOOR SW
BACK UP
GND
FUSE
ELECTRONIC VOLUME/SOURCE SELECTOR
IC 451
PML004AF
TUN L
BUS+L
BUS-L
CD L
DFS
FL
RL
PREOUT L
VCK/VDT/VST
IC 491
NJM4558MD
POWER AMP
IC 551
PAL005A
MUTE
STBY
B.REM
Q551
MUTE
SYSPW
CN433
FRONT-LCH
REAR-LCH
SUB WOOFER-LCH
CN431
HIGHT OUT
IC 452
PA2028A
Q453
Q452
Q451
Q433
Q432
Q431
X601
TH601
X1
X2
TEMP
SYSTEM
CONTROLLER
IC 601 (2/2)
PE5004B
MUTE
8V REGULATOR
Q954
Q434
Q955
Q957
C KEYBOARD UNIT
D657
Q656
REMOTE CONTROL
SENSOR
IC 902
RS-140
OPT-IN
D904
D903
SW5V
DPDT
KYDT
DSENS
Q655
KEY/LCD
DRVER
IC 901
PD6279A
KEY MATRIX
KEY
DATA
LCD
LCD
DATA
LCD BACK LIGHT
FL+B
FL-
CN651
CN901

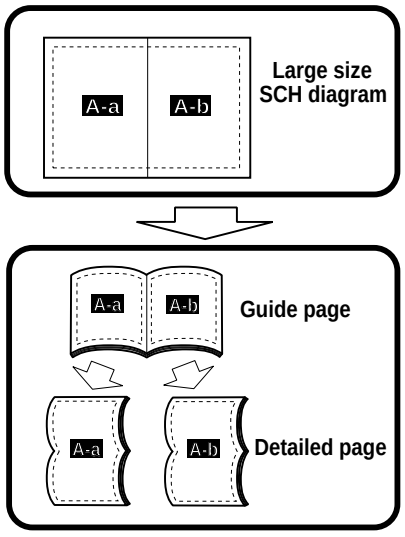
3.2 BLOCK DIAGRAM(DEH-P7050/ES)

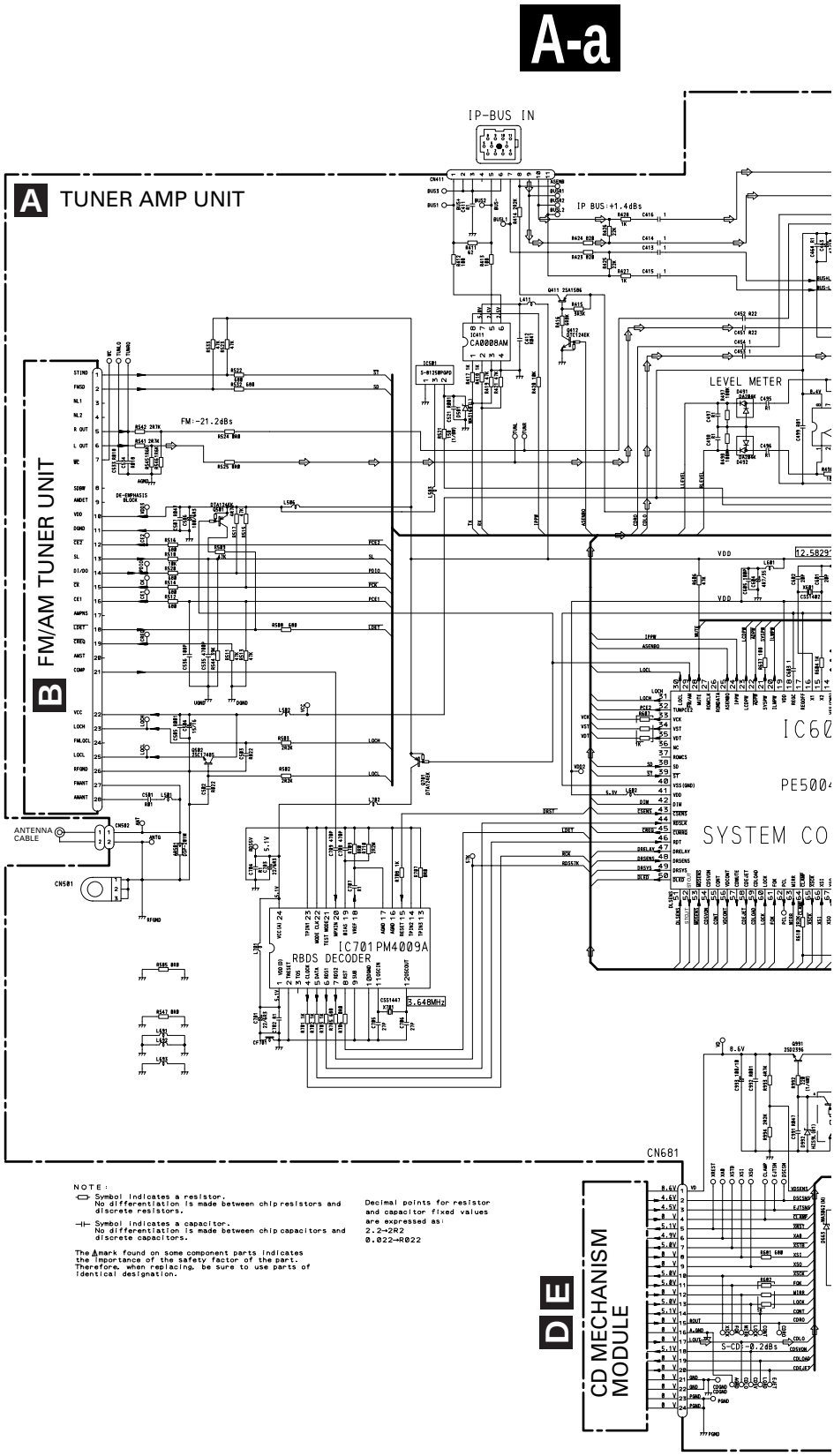



RESET
IC 631
S-80734ANDYI
VDD
D851
Q801
Q952
5V REGULATOR
B.U
FM/AM
SYSTEM
CONTROLLER
IC 601 (1/2)
PE5005A
MODEL1
SD
SL
TUNPCE
TUNPCK
TUNPCE2
TUNPDO
ASENBO
SYSPW
ALARM
IC 851
TPD1018F
DRELAY
BSENS
ASENS
ISENS
TELIN
MOSENS
DLSENS
DRSYS
DRSENS
Q851
Q852
Q853
Q953
Q958
Q951
Q954
Q855
CN951
ACC
ILL
MUTE
SENSOR
DRLOCK
ALARM
DOOR SW
BACK UP
GND
FUSE
ACC
ILL
MUTE
ALARM SENSOR
DOOR LOCK
ALARM
DOOR SWITCH
BACK UP
GND
CTRONIC VOLUME/SOURCE SELECTOR
IC 451
PML004AF
TUN L
BUS+L
BUS-L
CD L
DFS
FL
RL
PREOUT L
VCK/VDT/VST
IC 491
NJM4558MD
POWER AMP
IC 551
PAL005A
MUTE
STBY
B.REM
Q551
MUTE
SYSPW
RL-
RL+
FL-
FL+
B.REM
CN433
FRONT-LCH
REAR-LCH
SUB WOOFER-LCH
CN431
HIGHT OUT
IC 452
PA2028A
FLI
RLI
SWLI
FLO
RLO
SWLO
Q453
Q452
Q451
Q433
Q432
Q431
LLEVEL
X1
X2
TEMP
X601
TH601
SYSTEM
ONTROLLER
601 (2/2)
PE5005A
MUTE
Q434
8V REGULATOR
Q954
SYS
+B
Q955
B.U
SYSPW
Q957
C KEYBOARD UNIT
IL+B
657
Q656
REMOTE CONTROL
SENSOR
OPT-IN
IC 902
RS-140
D904
D903
SW5V
DPDT
KYDT
DSENS
Q655
SI
SO
VCC
REMIN
KEY
DATA
KEY MATRIX
X0
X1
X901
KEY/LCD
DRVER
IC 901
PD6279A
LCD
DATA
LCD
LCD BACK LIGHT
FL+B
FL-
CN651
CN901

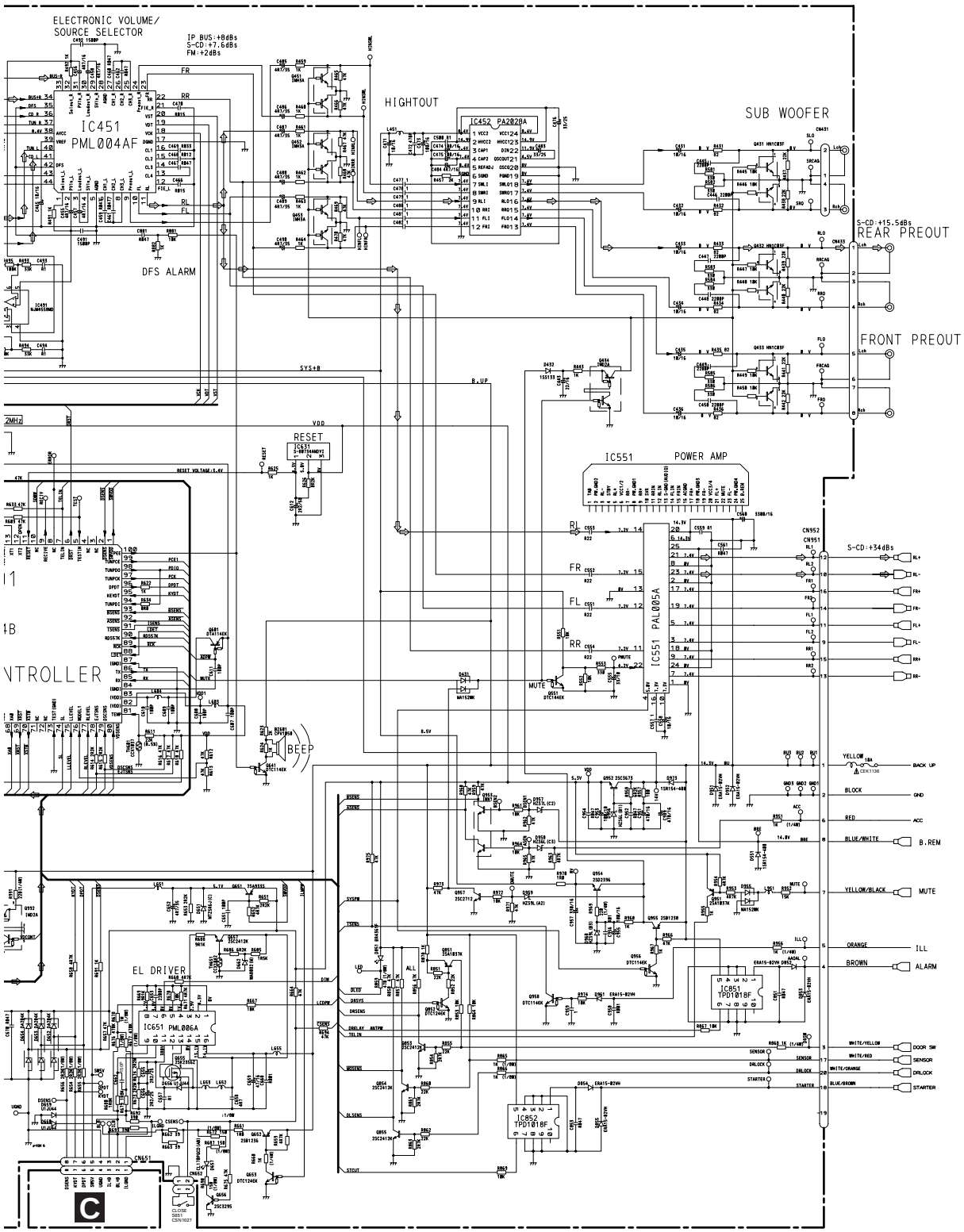
3.3 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)(DEH-P700R/UC)

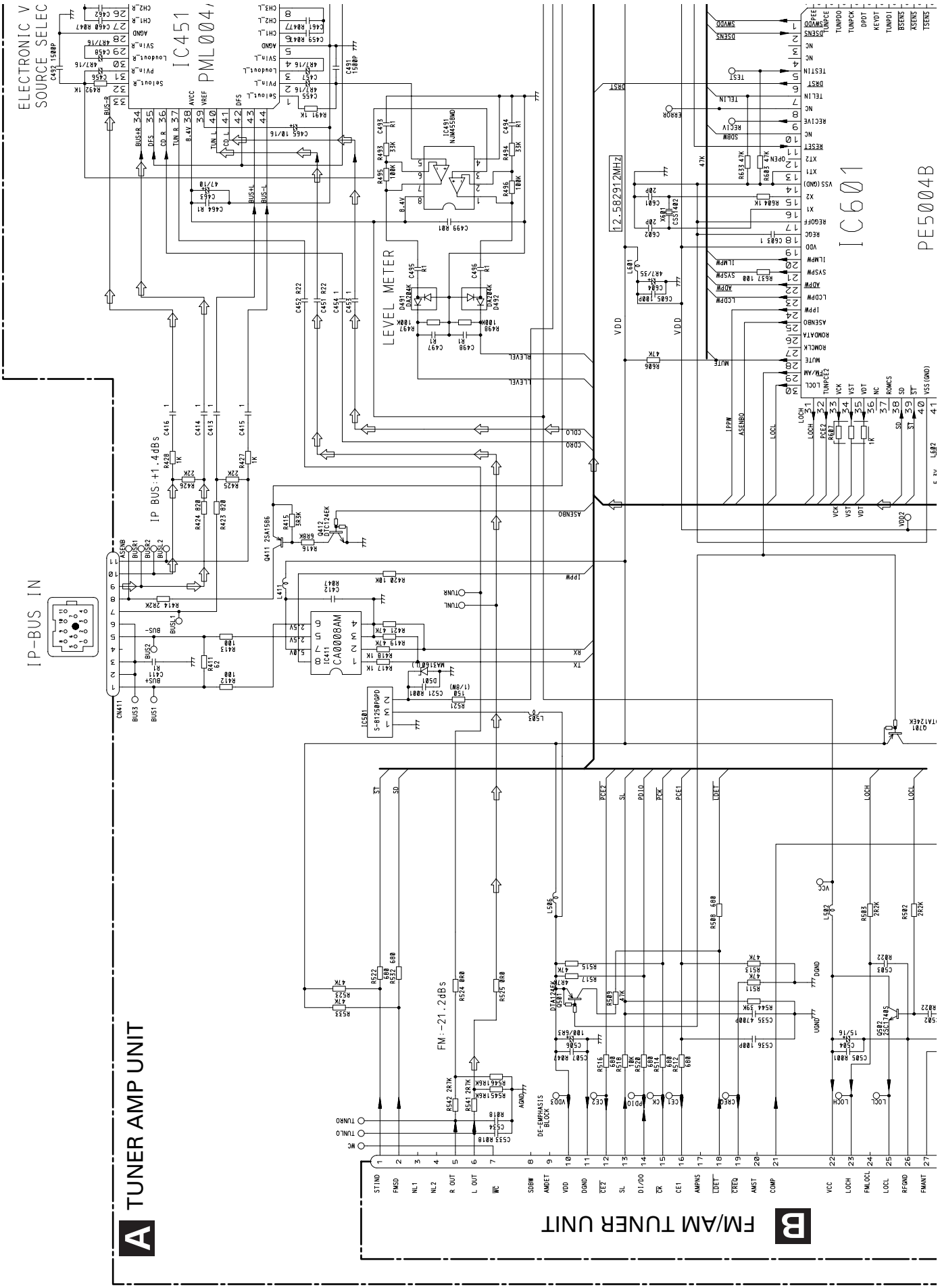
Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".

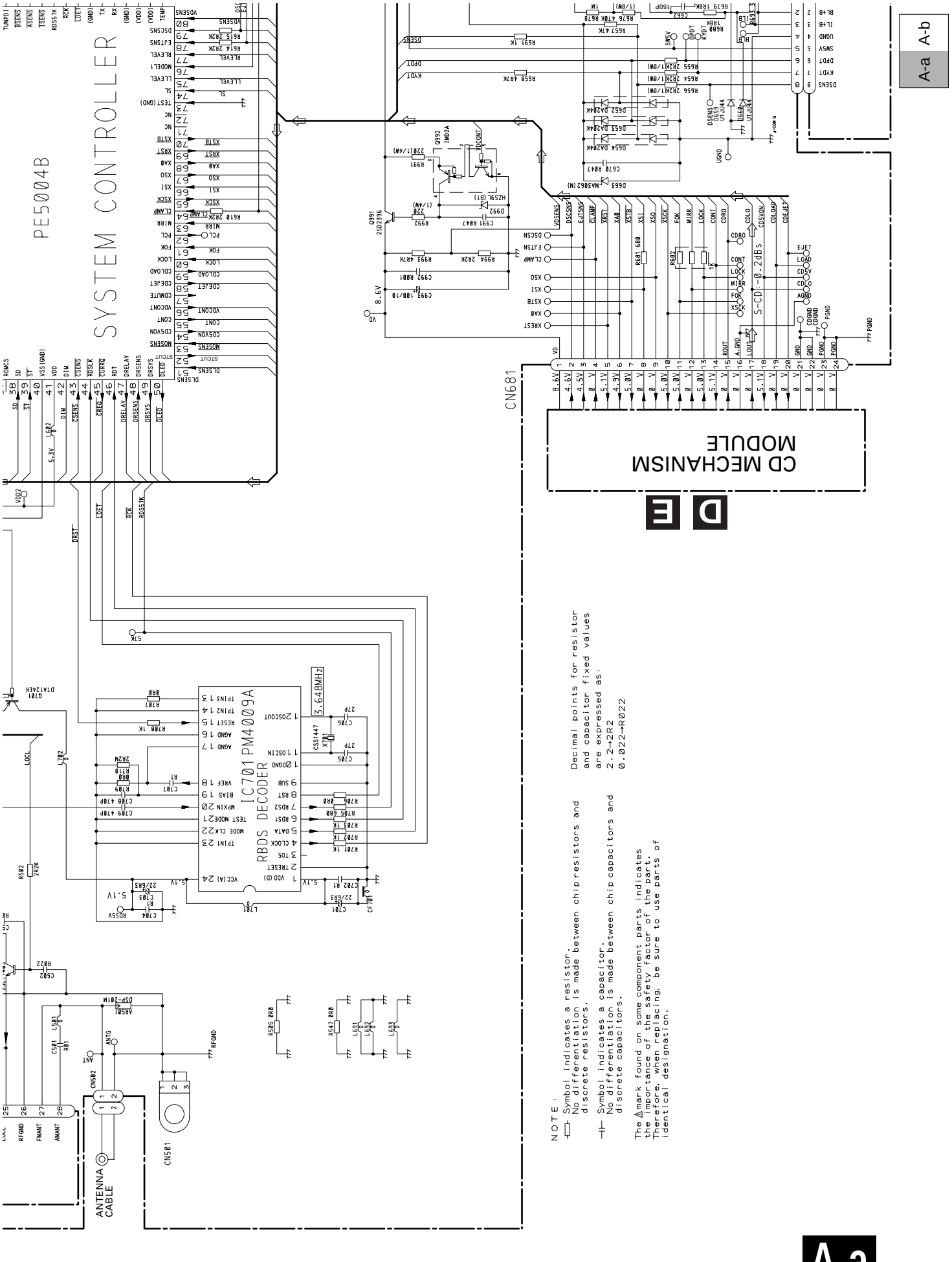


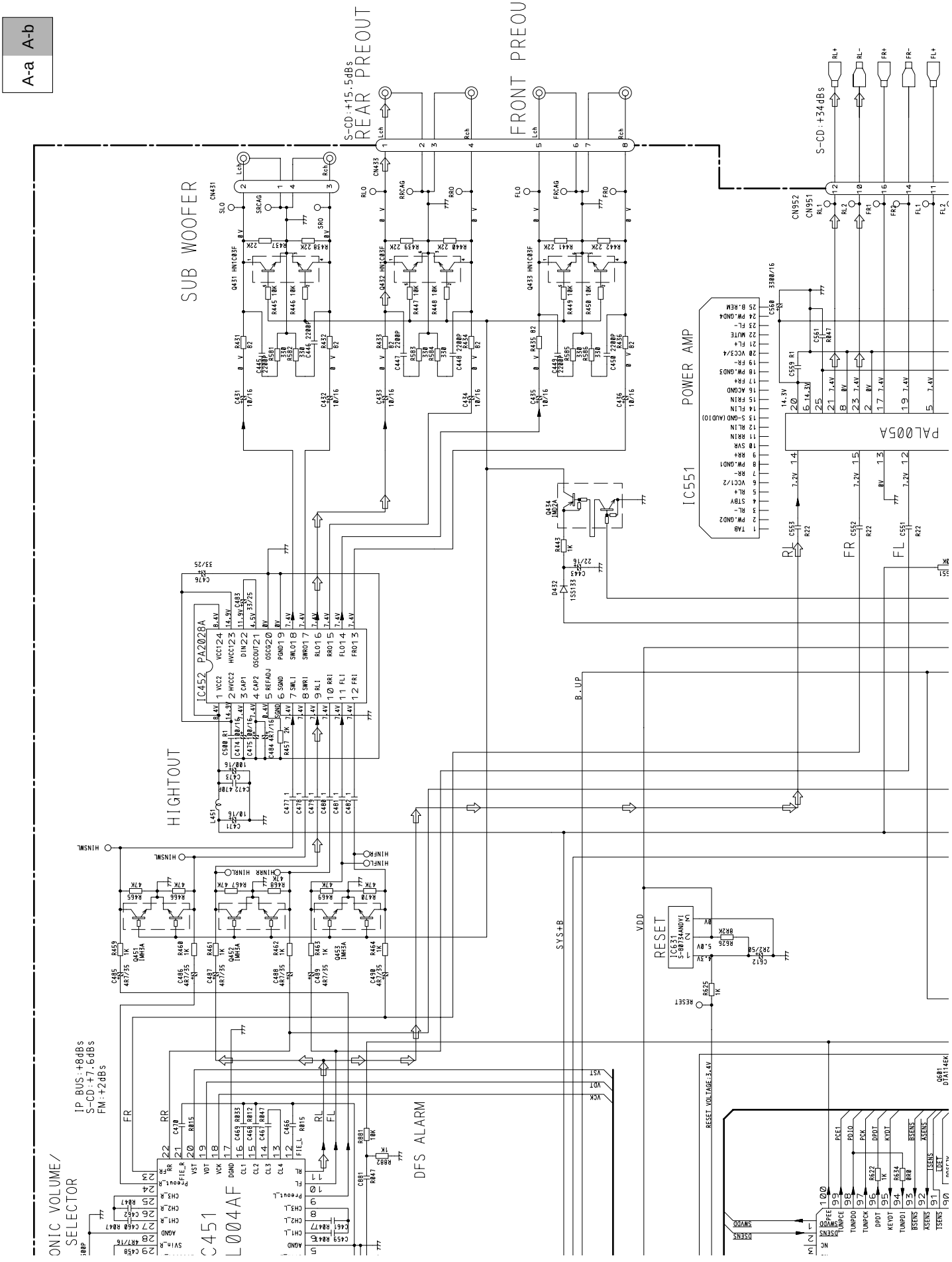

A-a
IP-BUS IN
A TUNER AMP UNIT
B FM/AM TUNER UNIT
IP BUS:+1.4dBs
FM:-21.2dBs
LEVEL METER
IC701PM4009A
RBDS DECODER
SYSTEM CO
PE5004
ANTENNA CABLE
CN582
CN581
CN681
D E CD MECHANISM MODULE
S-CD:-8.2dBs
NOTE:
Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

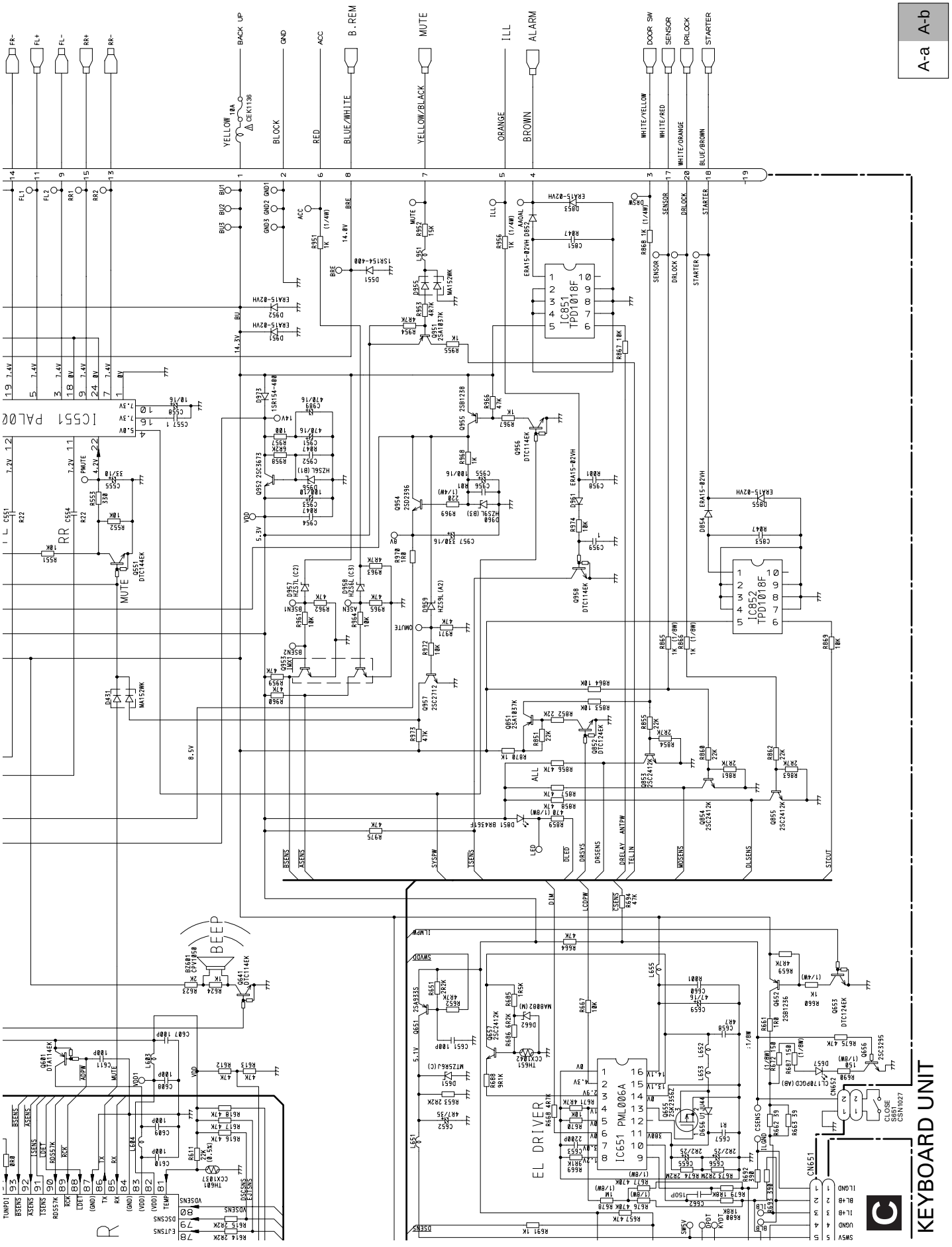
A-b


ELECTRONIC VOLUME/
SOURCE SELECTOR
IP BUS:+8dBs
S-CD:+7.6dBs
FM:+2dBs
IC451
PML004AF
HIGHTOUT
IC452 PA2828A
SUB WOOFER
S-CD:+15.5dBs
REAR PREOUT
FRONT PREOUT
DFS ALARM
SYS+B
B.UP
RESET
IC551 POWER AMP
IC551 PAL005A
BEEP
EL DRIVER
IC651 PML006A
IC651 TPD1018F
IC652 TPD1018F
CN651
KEYBOARD UNIT
S-CD:+34dBs
YELLOW
BACK UP
BLOCK
GND
RED
ACC
BLUE/WHITE
B.REM
YELLOW/BLACK
MUTE
ORANGE
ILL
BROWN
ALARM
WHITE/YELLOW
DOOR SW
WHITE/RED
SENSOR
WHITE/ORANGE
DRLOCK
BLUE/BROWN
STARTER


A-a A-b
ELECTRONIC V
SOURCE SELEC
IC451 PML004
IC601 PE5004B
12.582912MHz
LEVEL METER
IP BUS : +1.4dBs
IP-BUS IN
FM : -21.2dBs
A TUNER AMP UNIT
B FM/AM TUNER UNIT
DE-EMPHASIS BLOCK
STIND
FMSD
NL1
NL2
R OUT
L OUT
MC
SDBW
AMDET
VDD
DGND
CE2
SL
DI/DO
CK
CE1
AMPNS
CDET
CREQ
AMST
COMP
VCC
LOCH
FMLOCL
LOCL
RFGND
FMANT

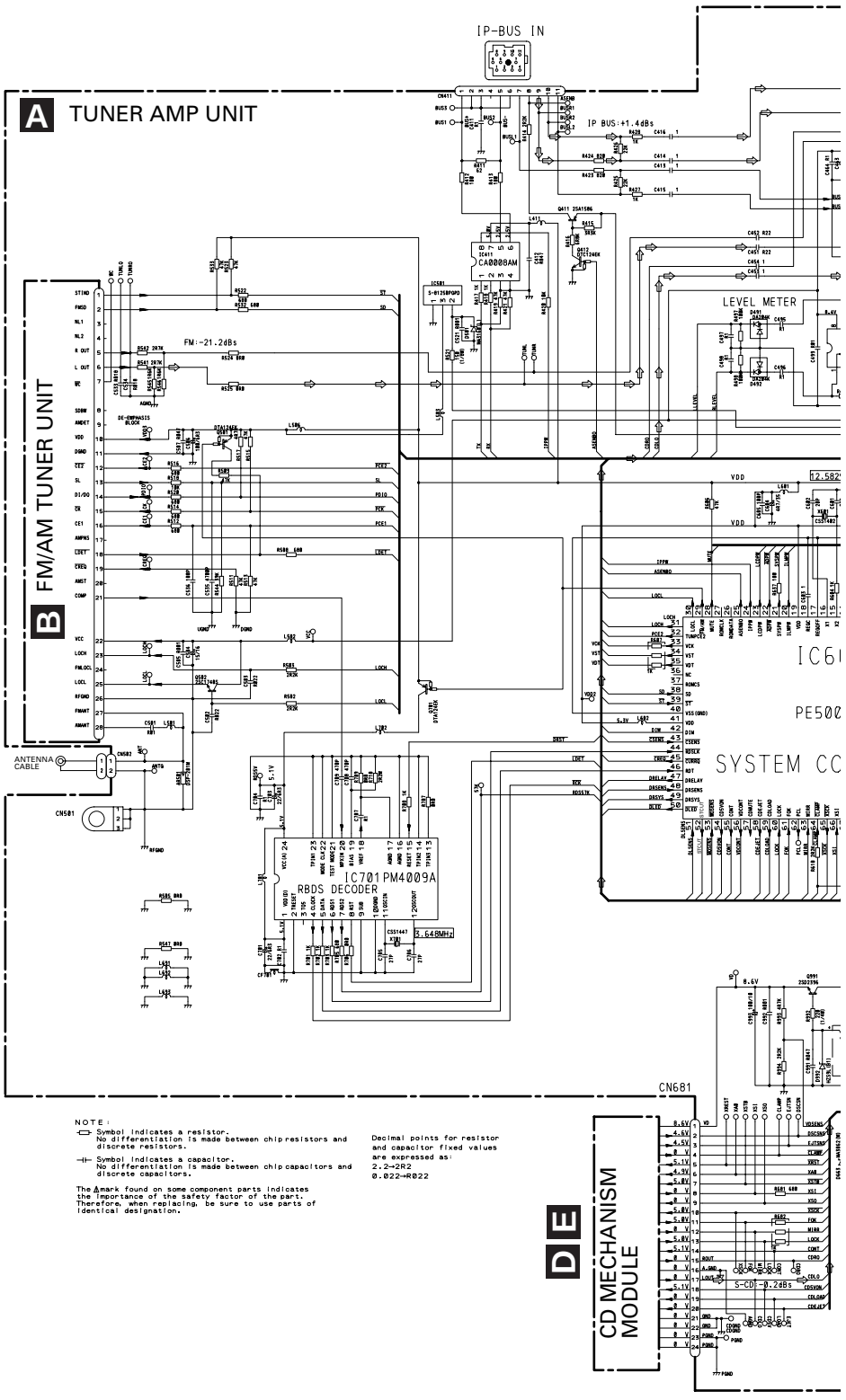

SYSTEM CONTROLLER
PE5004B
IC701 PM4009A
RBDS DECODER
CD MECHANISM MODULE
CN681
S-CD:-0.2dBS
ANTENNA CABLE
CN501
CN502
NOTE :
Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022


A-b
A-a
SUB WOOFER
REAR PREOUT
FRONT PREOUT
S-CD:+15.5dBs
S-CD:+34dBs
POWER AMP
IC551
PAL005A
HIGHTOUT
IC452 PA2028A
RESET
IC631 S-80734ANDY1
DFS ALARM
IP BUS:+8dBs
S-CD:+7.6dBs
FM:+2dBs
SONIC VOLUME/
SELECTOR
IC451
L004AF
B.UP
SYS+B
VDD
RESET
FR
RR
RL
FL

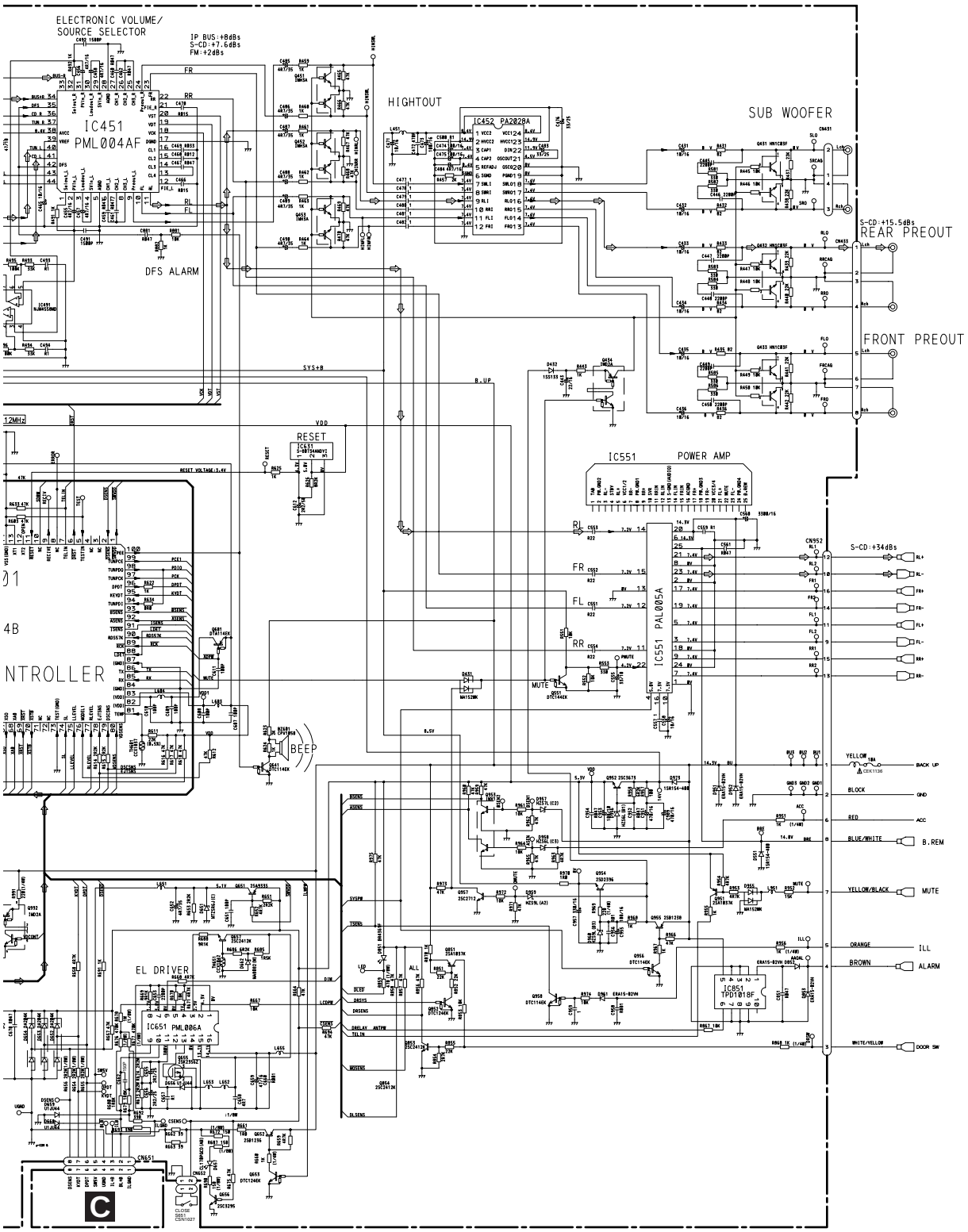

A-a A-b
KEYBOARD UNIT
C
A-b
23
IC851 TPD1018F
IC852 TPD1018F
EL DRIVER IC651 PML006A
BEEP
FR-
FL+
FL-
RR+
RR-
BACK UP
GND
ACC
B.REM
MUTE
ILL
ALARM
DOOR SW
SENSOR
DRLOCK
STARTER
YELLOW 10A
BLOCK
RED
BLUE/WHITE
YELLOW/BLACK
ORANGE
BROWN
WHITE/YELLOW
WHITE/RED
WHITE/ORANGE
BLUE/BROWN
CN651

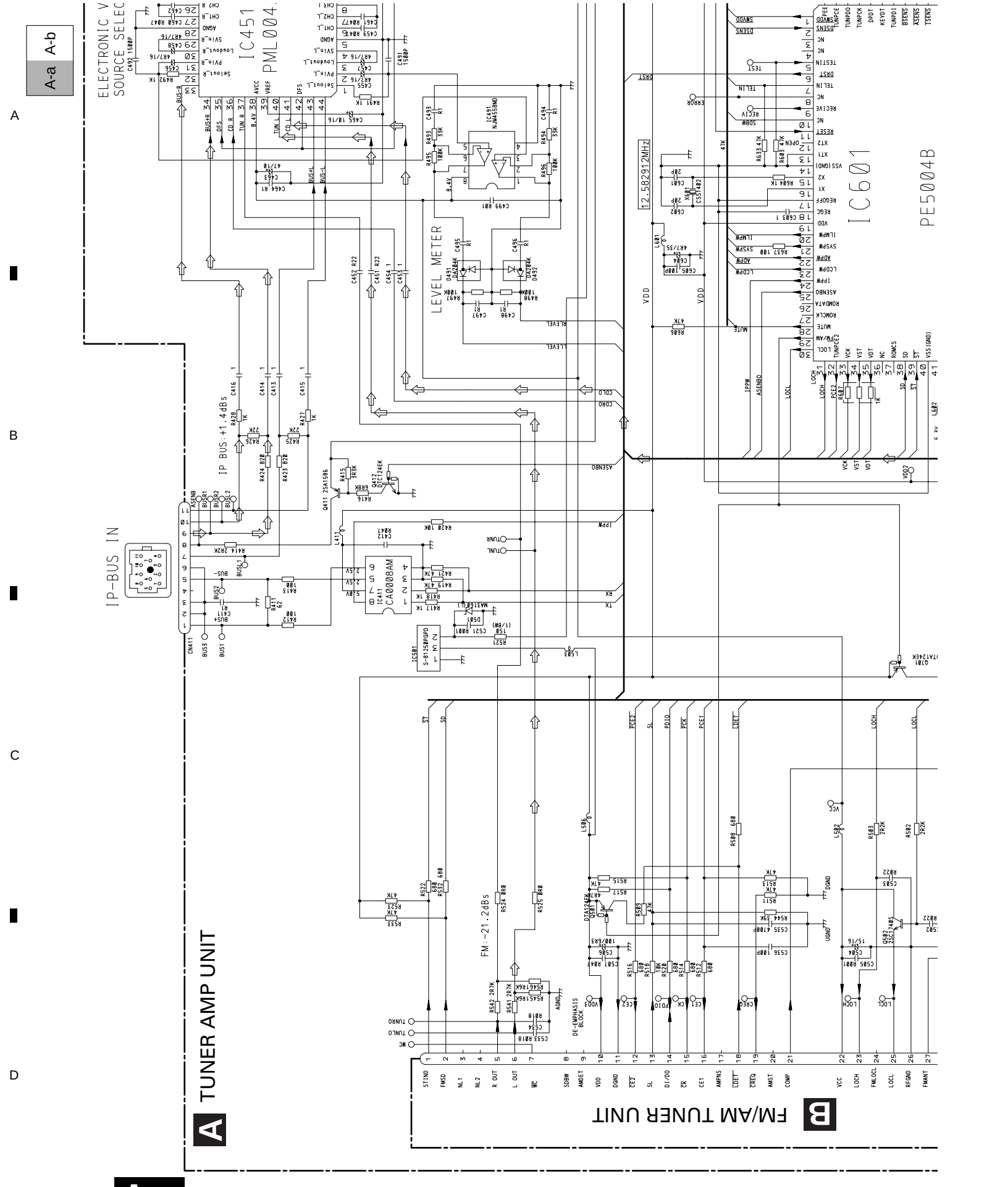
3.4 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)(DEH-P7000R/UC)

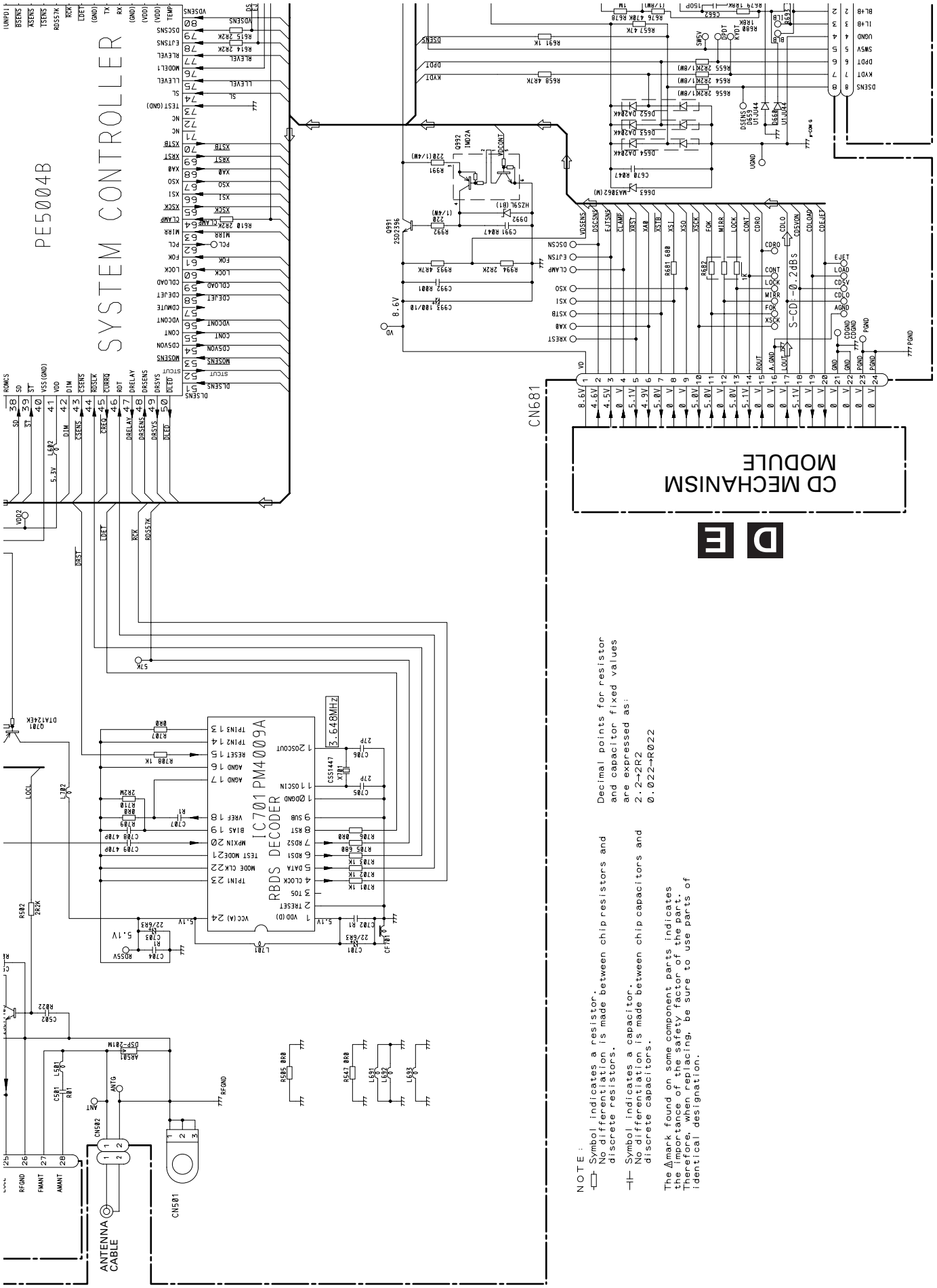
A-a


IP-BUS IN
A TUNER AMP UNIT
B FM/AM TUNER UNIT
IP BUS:+1.4dBs
FM:-21.2dBs
LEVEL METER
IC701 PM4009A
RBDS DECODER
6.64MHz
ANTENNA CABLE
CN501
CN681
SYSTEM CC
PE500
DE CD MECHANISM MODULE
S-CD:-0.2dBs
NOTE:
Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.
The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

A-b


ELECTRONIC VOLUME/
SOURCE SELECTOR
IP BUS:+8dBs
S-CD:+7.6dBs
FM:+2dBs
IC451
PML004AF
DFS ALARM
HIGHTOUT
IC452 PA2028A
SUB WOOFER
S-CD:+15.5dBs
REAR PREOUT
FRONT PREOUT
SYS+B
B.UP
RESET
IC551 POWER AMP
IC551 PAL005A
S-CD:+34dBs
CN952
BEEP
MUTE
EL DRIVER
IC651 PML006A
IC651 TPD1018F
YELLOW
BACK UP
BLOCK
GND
RED
ACC
BLUE/WHITE
B.REM
YELLOW/BLACK
MUTE
ORANGE
ILL
BROWN
ALARM
WHITE/YELLOW
DOOR SW
KEYBOARD UNIT

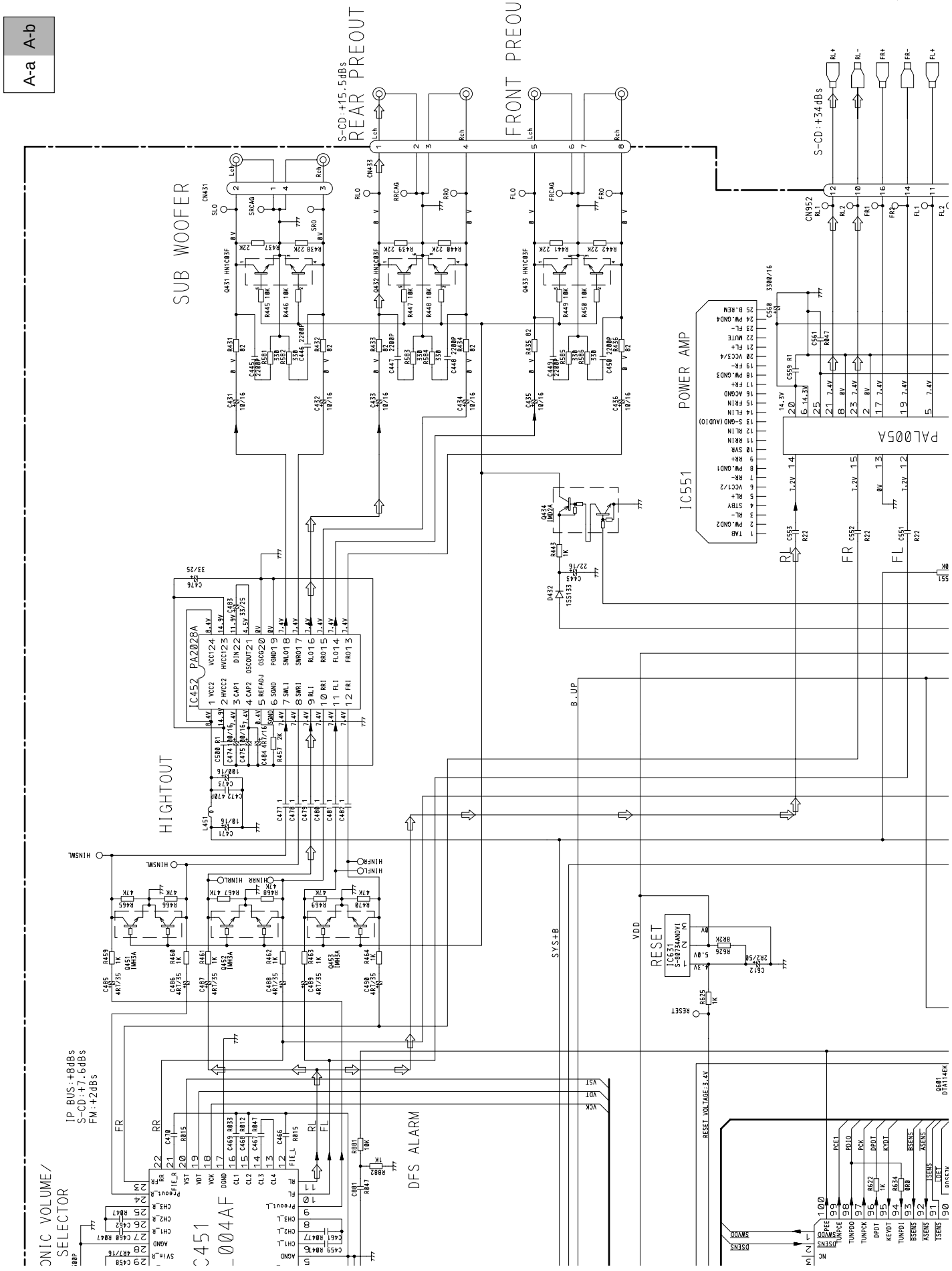

A-a A-b
A TUNER AMP UNIT
B FM/AM TUNER UNIT
IP-BUS IN
IP BUS:+1.4dBs
FM:-21.2dBs
LEVEL METER
ELECTRONIC V
SOURCE SELEC
IC451 PML004
IC601 PE5004B
12.582912MHz
IC CA0008AM
DE-EMPHASIS BLOCK
STIND FMSD NL1 NL2 R OUT L OUT WC SDBW AMDET VDD DGND CE2 SL DI/DO CK CE1 AMPNS LDET CREQ AMST COMP VCC LOCH FMLOCL LOCL RFGND FMANT

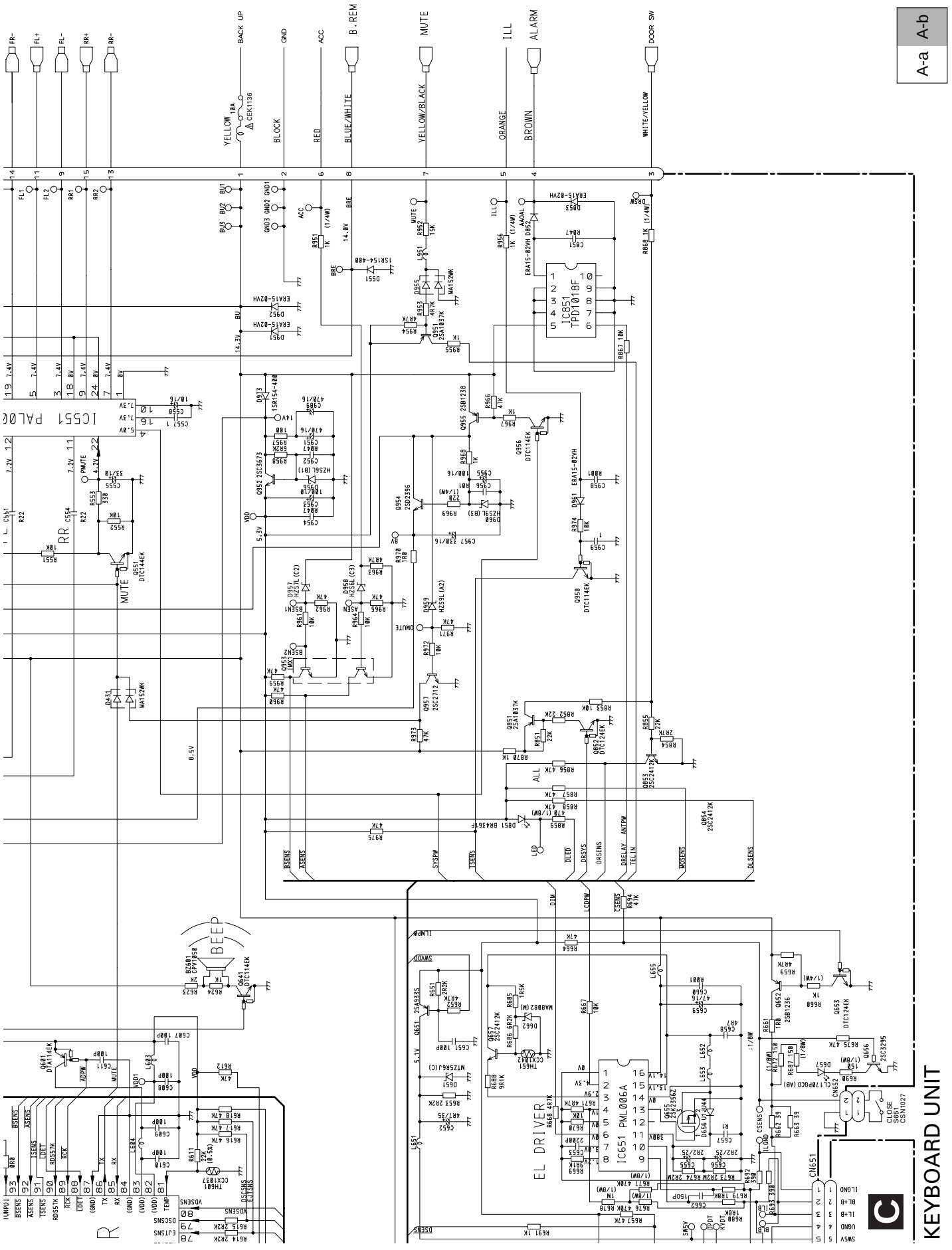


NOTE:
- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

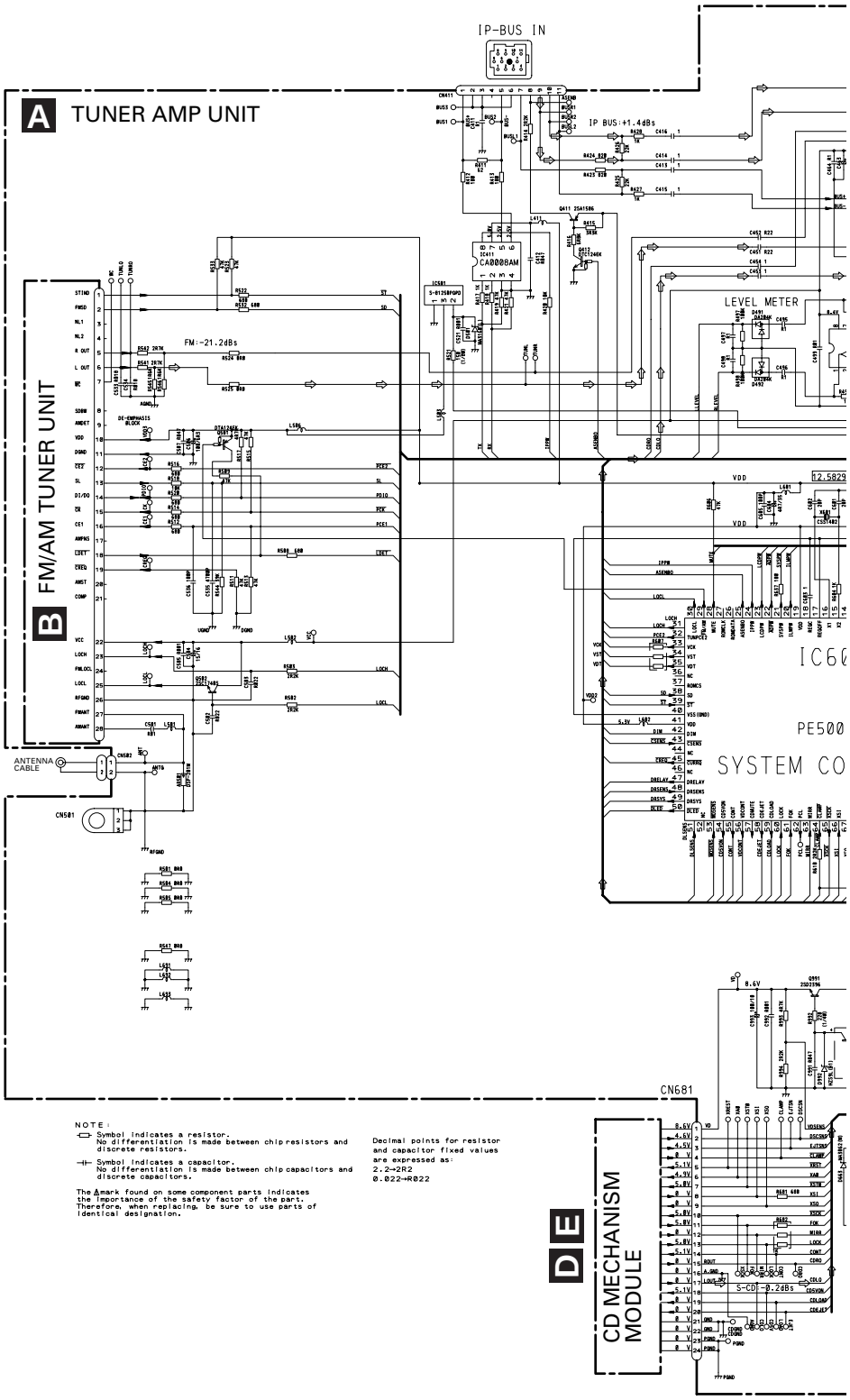
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022


A-b
A-a
SUB WOOFER
REAR PREOUT
FRONT PREOUT
S-CD:+15.5dBs
S-CD:+34dBs
POWER AMP
IC551
PAL005A
IC452 PA2028A
HIGHTOUT
DFS ALARM
RESET
VOLUME/
SELECTOR
IP BUS:+8dBs
S-CD:+7.6dBs
FM:+2dBs
RESET VOLTAGE:3.4V
B_UP
SYS+B
VDD

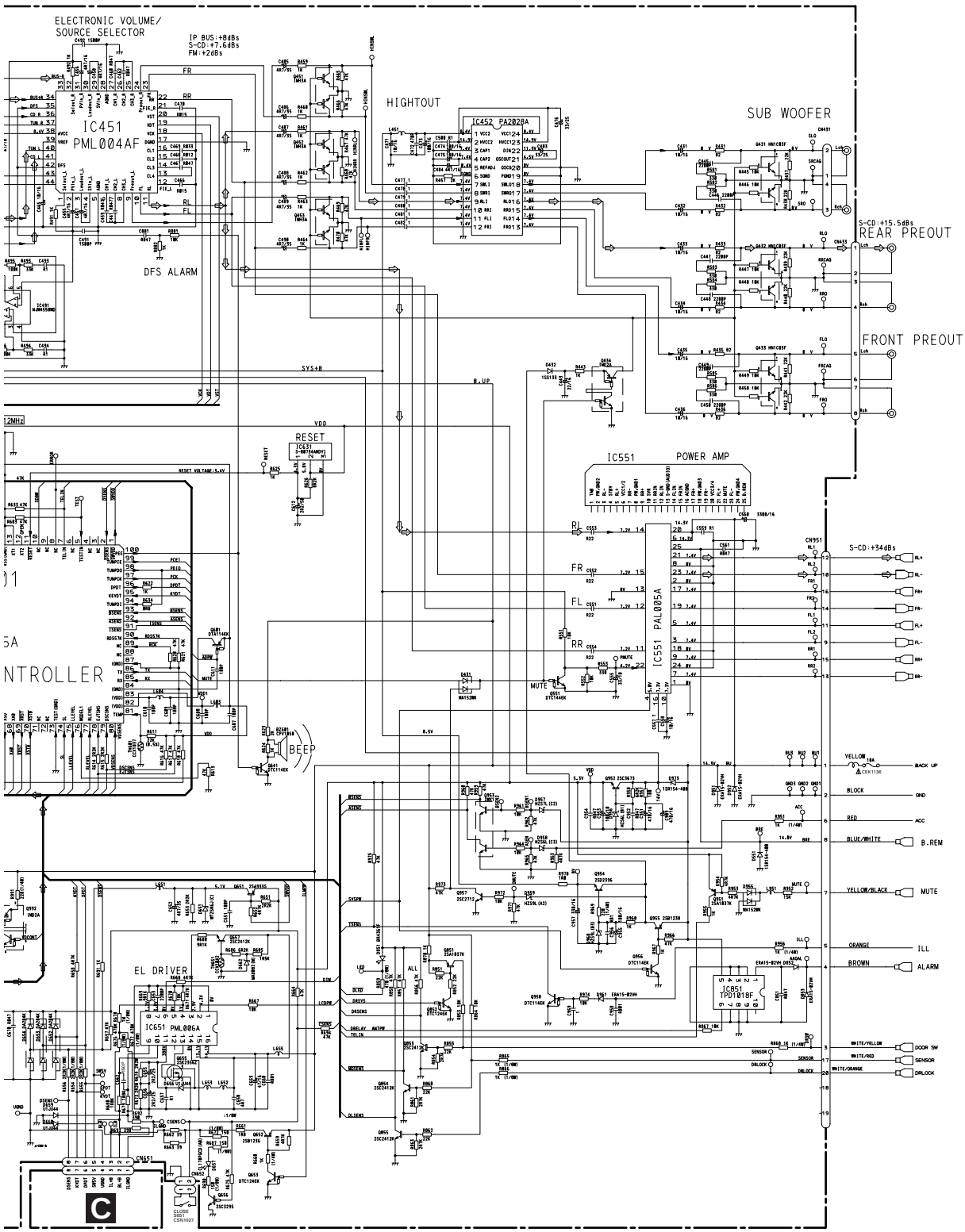

A-a A-b
FR- FL+ FL- RR+ RR-
BACK UP
GND
ACC
B.REM
MUTE
ILL
ALARM
DOOR SW
YELLOW 10A
BLOCK
RED
BLUE/WHITE
YELLOW/BLACK
ORANGE
BROWN
WHITE/YELLOW
IC851 TPD1018F
IC651 PML006A
EL DRIVER
BEEP
KEYBOARD UNIT
CN651
A-b
29

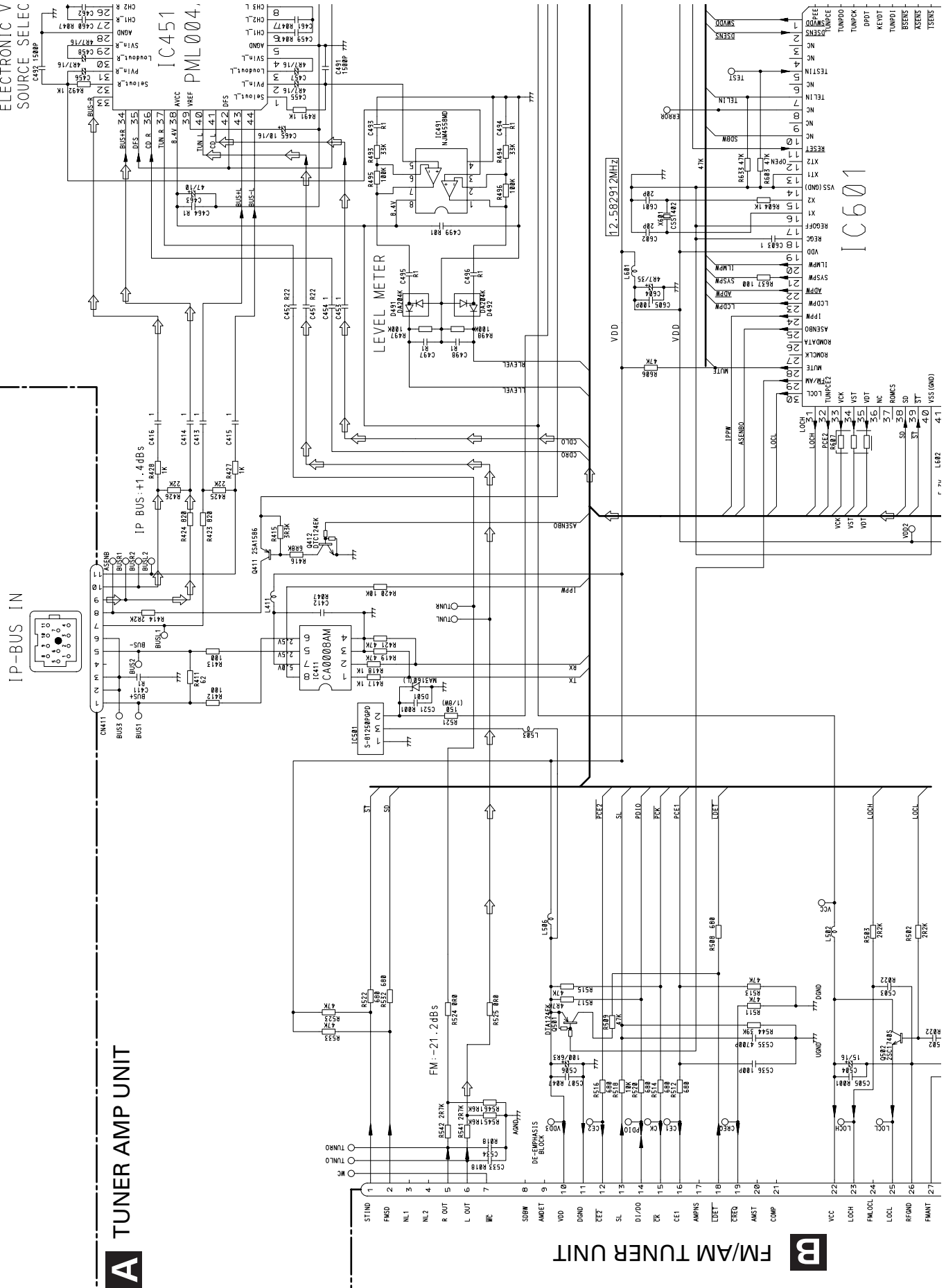
3.5 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)(DEH-P7050/ES)

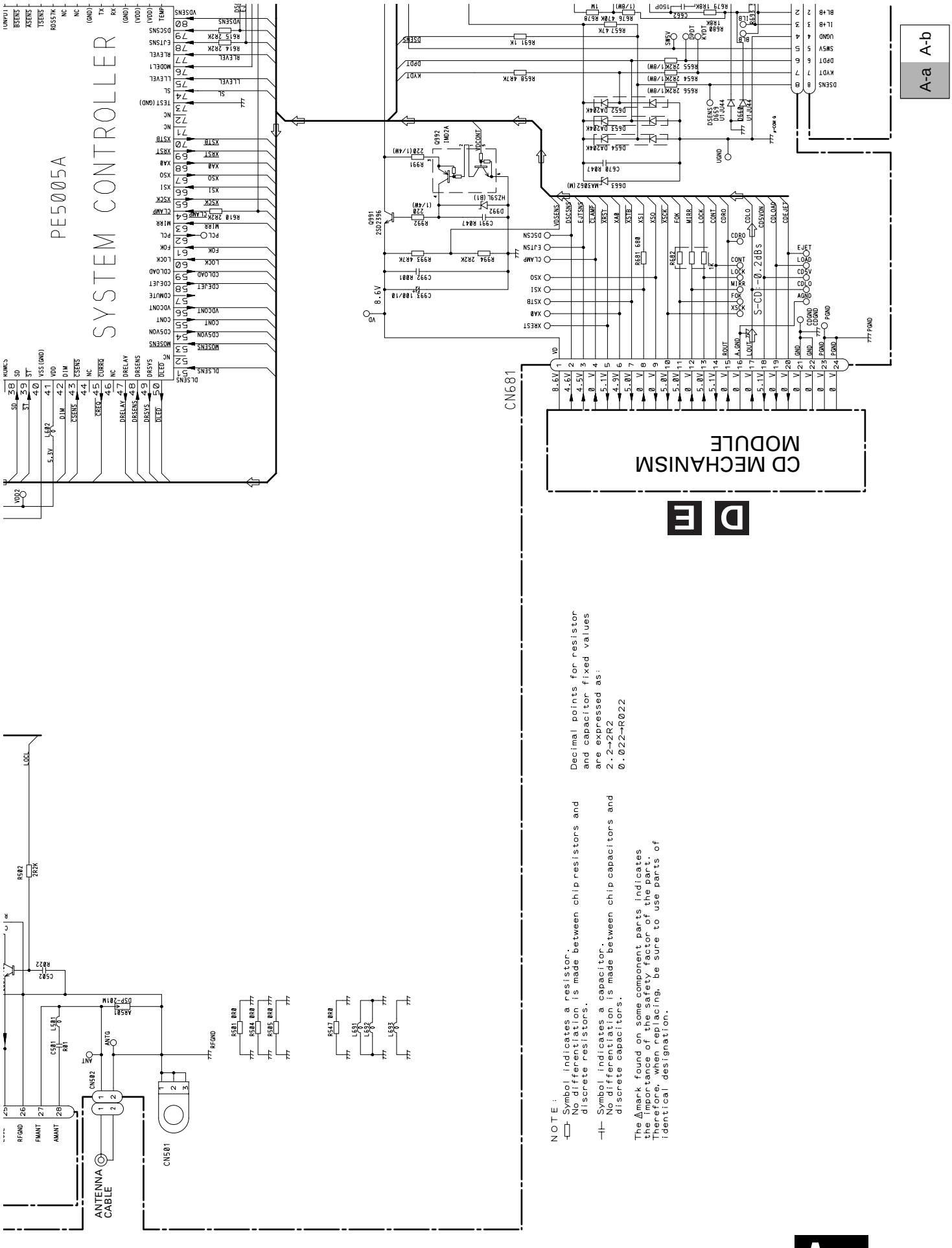
A-a

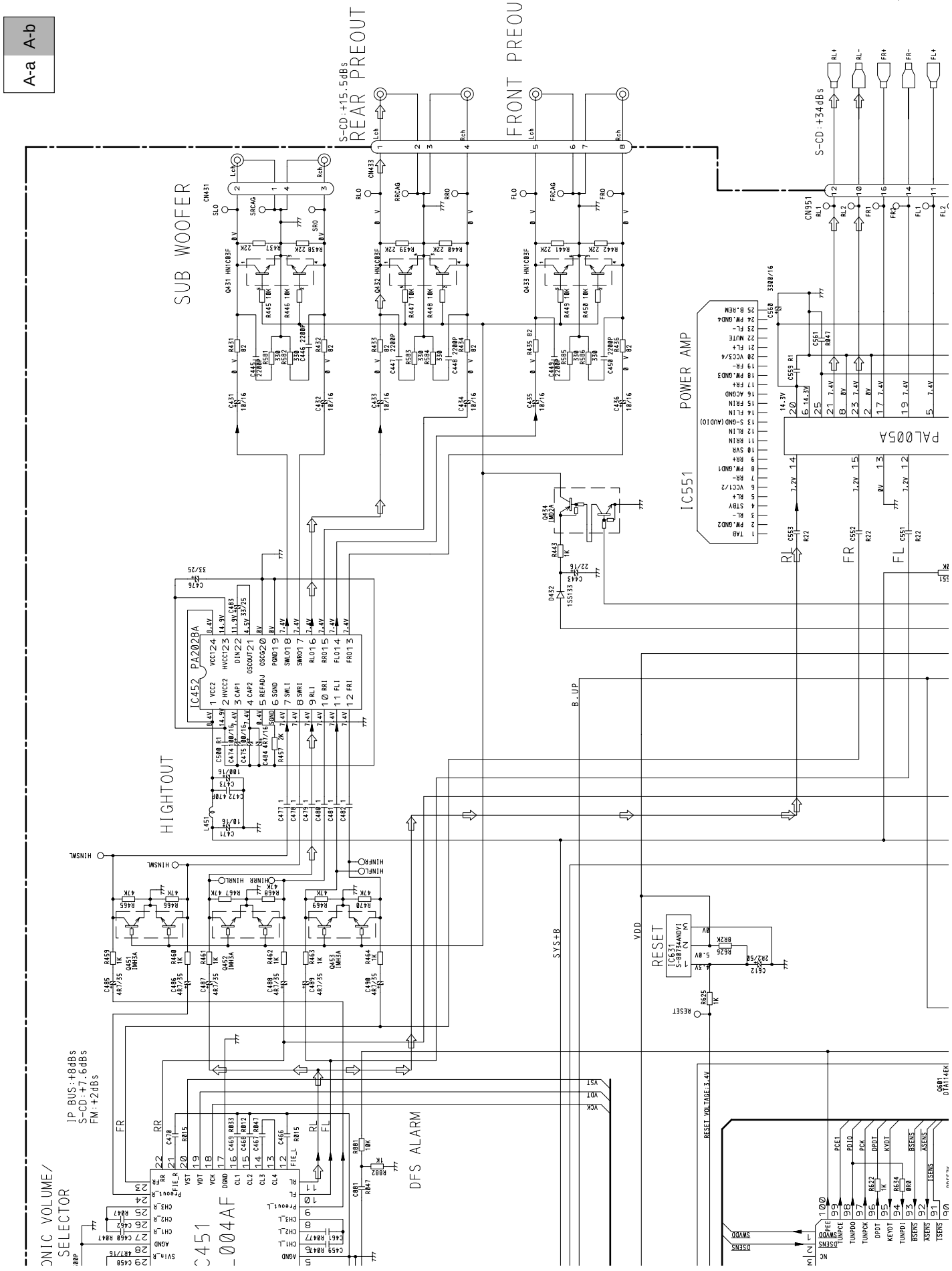

IP-BUS IN
A TUNER AMP UNIT
B FM/AM TUNER UNIT
IP BUS:+1.4dBs
FM:-21.2dBs
LEVEL METER
ANTENNA CABLE
CN581
CN681
DE CD MECHANISM MODULE
S-CDI:-0.2dBs
SYSTEM CO
PE500
NOTE :
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
The Δmark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

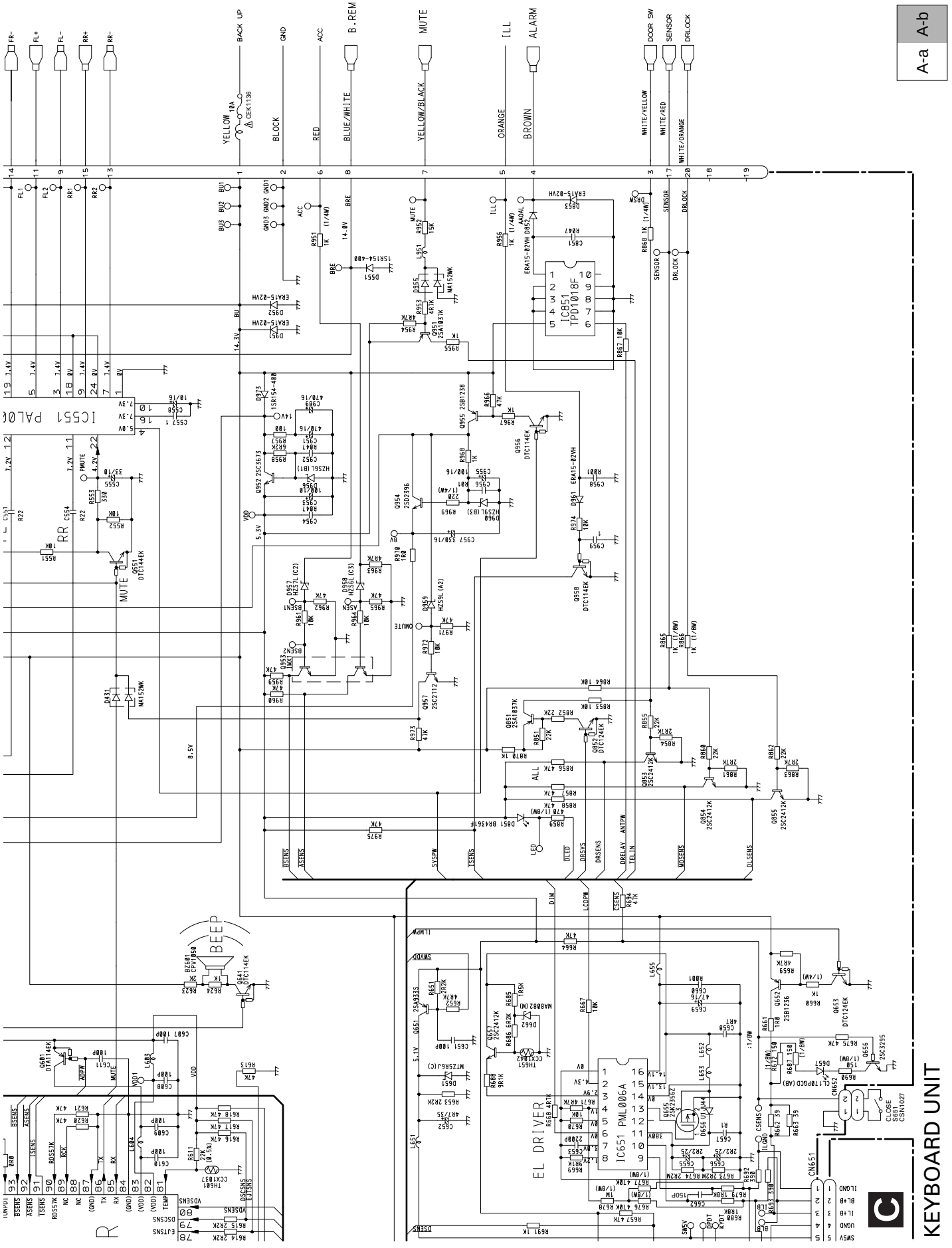
A-b


ELECTRONIC VOLUME/
SOURCE SELECTOR
IP BUS:+8dBs
S-CD:+7.6dBs
FM:+2dBs
IC451
PML004AF
HIGHTOUT
IC452 PA2028A
SUB WOOFER
S-CD:+15.5dBs
REAR PREOUT
FRONT PREOUT
DFS ALARM
SYS+B
B.UP
RESET
IC551 POWER AMP
IC551 PAL005A
MUTE
BEEP
EL DRIVER
IC651 PML006A
IC651 TPD1018F
CN651
CN951
S-CD:+34dBs
YELLOW
BACK UP
BLOCK
GND
RED
ACC
BLUE/WHITE
B.REM
YELLOW/BLACK
MUTE
ORANGE
ILL
BROWN
ALARM
WHITE/YELLOW
DOOR SW
WHITE/RED
SENSOR
WHITE/ORANGE
DRLOCK
C
KEYBOARD UNIT

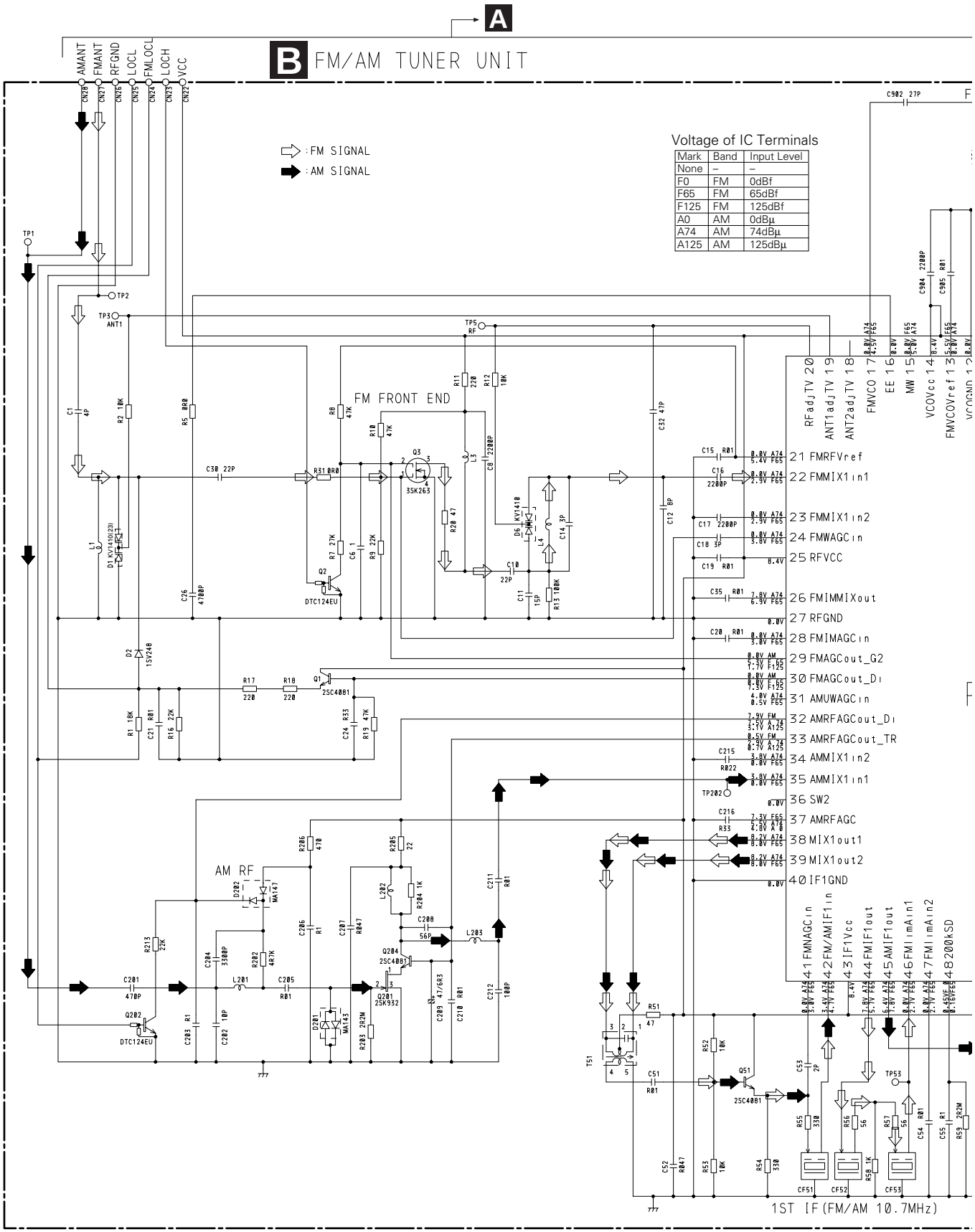

A TUNER AMP UNIT
B FM/AM TUNER UNIT
IP-BUS IN
IP BUS:+1.4dBs
FM:-21.2dBs
LEVEL METER
ELECTRONIC V
SOURCE SELEC
IC451
PML004
IC601
CA0008AM
S-81250PGPD
12.582912MHz
DE-EMPHASIS BLOCK
STIND
FMSD
NL1
NL2
R OUT
L OUT
MC
SDBW
AMDET
VDD
DGND
CE2
SL
DI/DO
CK
CE1
AMPNS
LDET
CREQ
AMST
COMP
VCC
LOCH
FMLOCL
LOCL
RFGND
FMANT

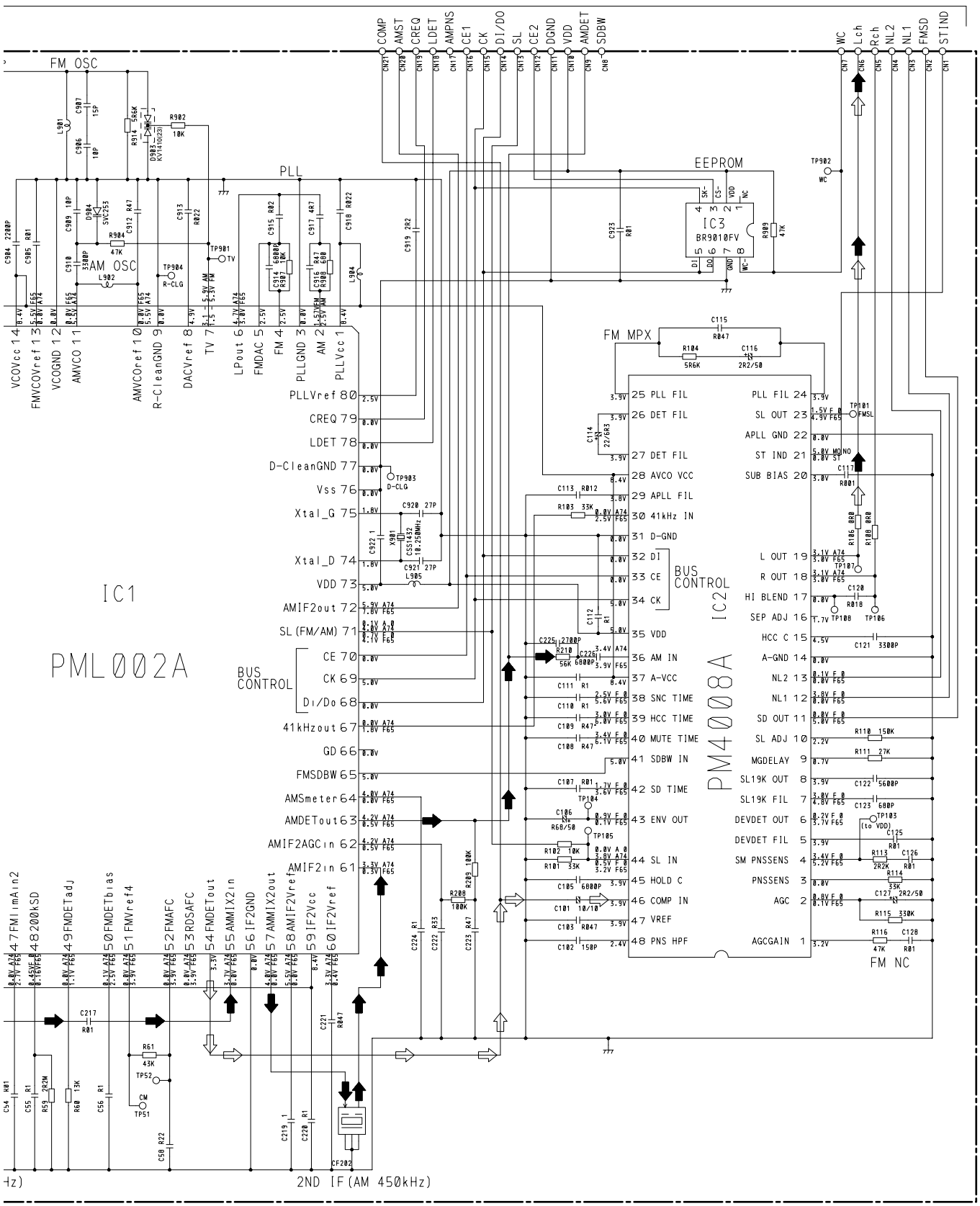

SYSTEM CONTROLLER
PE5005A
CD MECHANISM MODULE
CN681
S-CD: -0.2dBs
ANTENNA CABLE
CN501
NOTE :
Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.
The Δmark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022


A-a A-b
SUB WOOFER
REAR PREOUT
FRONT PREOUT
S-CD:+15.5dBs
S-CD:+34dBs
POWER AMP
IC551
PAL005A
IC452 PA2028A
HIGHTOUT
B.UP
SYS+B
VDD
RESET
IC631 S-80734ANDY1
DFS ALARM
IP BUS:+8dBs
S-CD:+7.6dBs
FM:+2dBs
RESET VOLTAGE:3.4V
FR
RR
RL
FL


A-a A-b
FR-
FL+
FL-
RR+
RR-
BACK UP
GND
ACC
B.REM
MUTE
ILL
ALARM
DOOR SW
SENSOR
DRLOCK
YELLOW 10A
BLOCK
RED
BLUE/WHITE
YELLOW/BLACK
ORANGE
BROWN
WHITE/YELLOW
WHITE/RED
WHITE/ORANGE
IC851 TPD1018F
IC651 PML006A
EL DRIVER
KEYBOARD UNIT
A-b

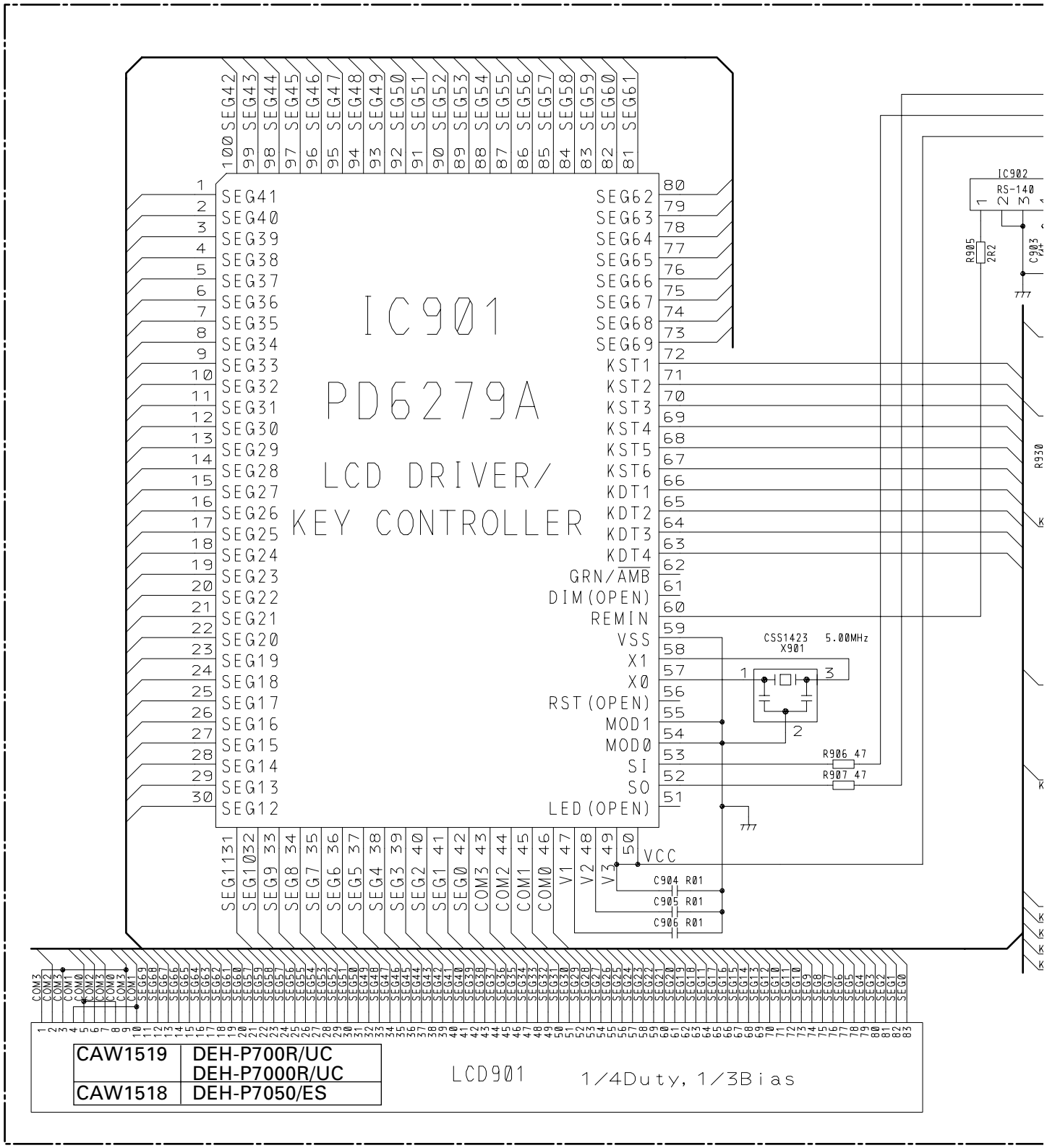
3.6 FM/AM TUNER UNIT



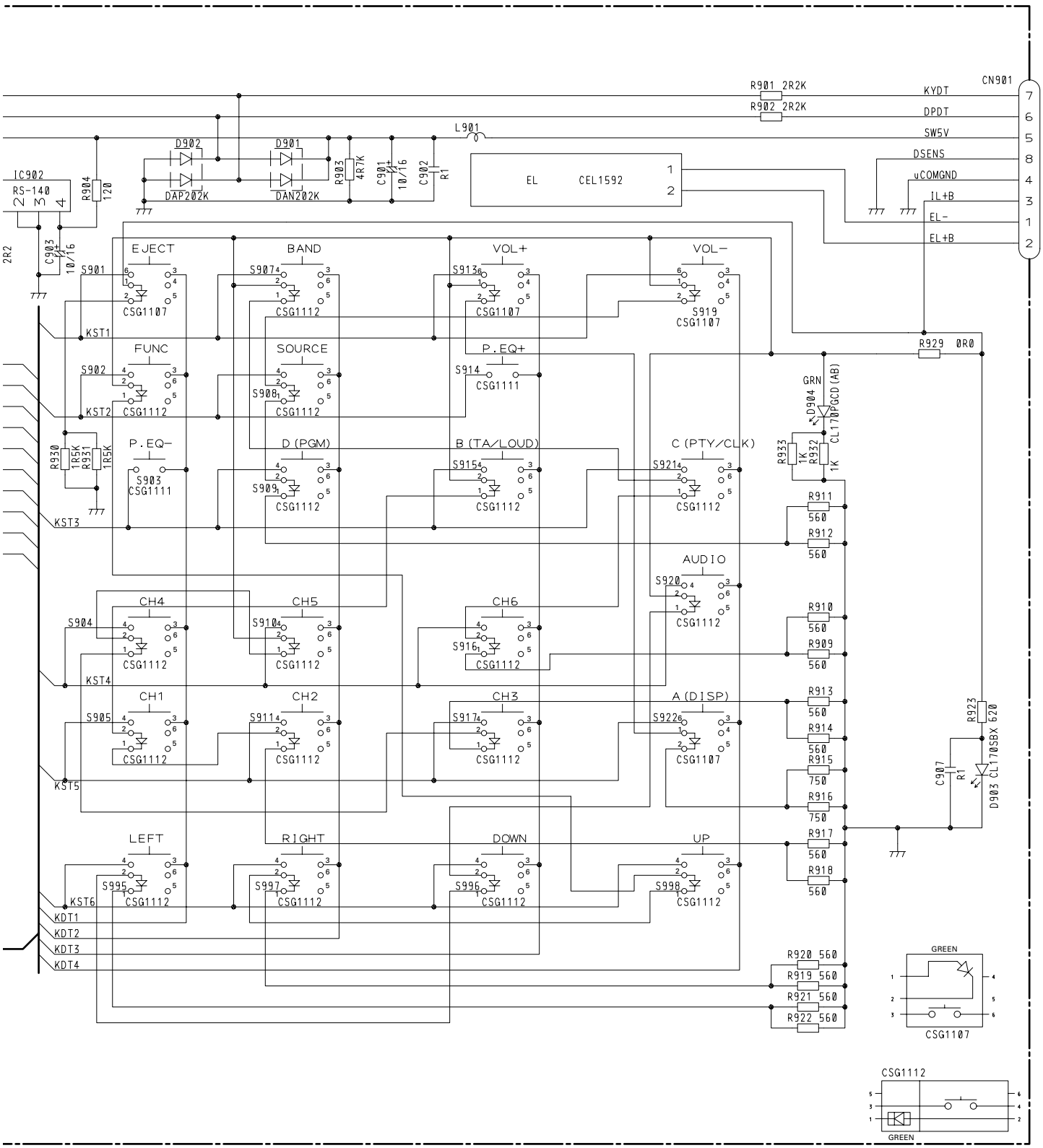

IC1
PML002A
IC2
PM4008A
IC3
BR9010FV
EEPROM
FM OSC
PLL
AM OSC
FM MPX
BUS CONTROL
FM NC
2ND IF(AM 450kHz)

3.7 KEYBOARD UNIT

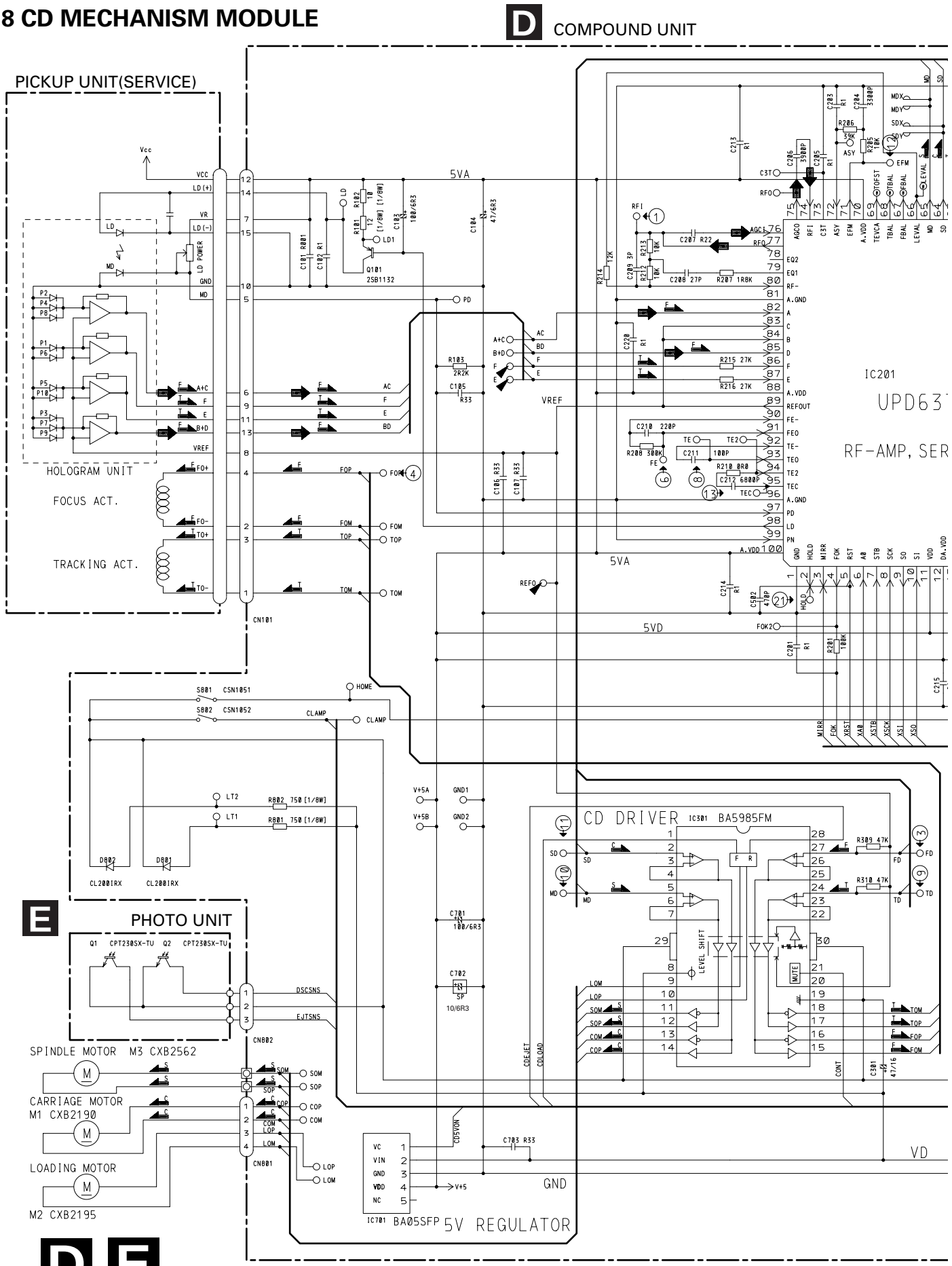
C KEYBOARD UNIT

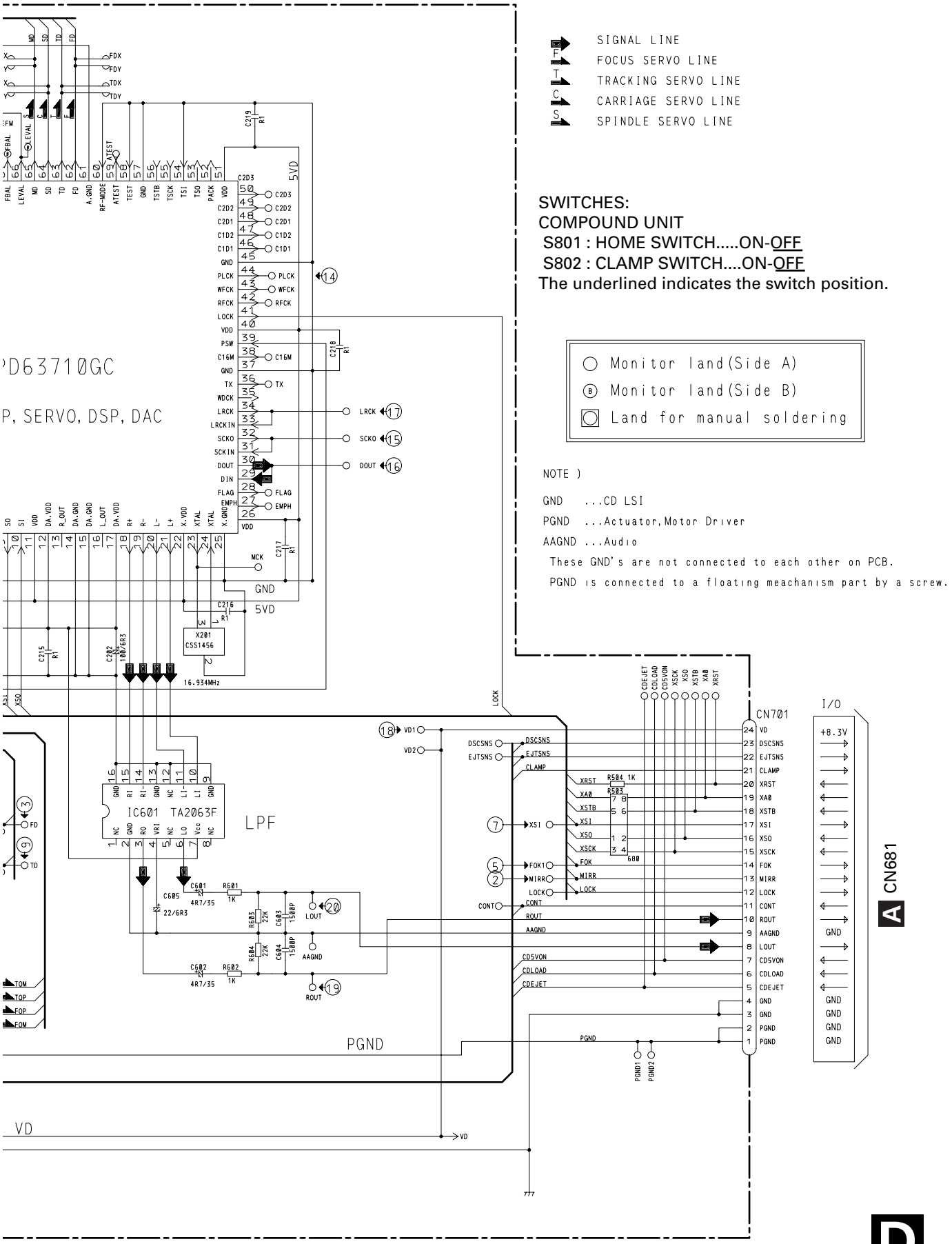


CAW1519	DEH-P700R/UC DEH-P7000R/UC
CAW1518	DEH-P7050/ES


CN901
KYDT
DPDT
SW5V
DSENS
uCOMGND
IL+B
EL-
EL+B
CN651
R901 2R2K
R902 2R2K
L901
D902
D901
DAP202K
DAN202K
R903 4R7K
C901 10/16
C902 R1
EL CEL1592
IC902 RS-140
R904 120
2R2
C903 10/16
S901 EJECT
S907 BAND
S913 VOL+
S919 VOL-
CSG1107
CSG1112
KST1
S902 FUNC
S908 SOURCE
S914 P.EQ+
CSG1111
KST2
R930 1R5K
R931 1R5K
S903 P.EQ-
S909 D (PGM)
S915 B (TA/LOUD)
S921 C (PTY/CLK)
KST3
S904 CH4
S910 CH5
S916 CH6
S920 AUDIO
KST4
S905 CH1
S911 CH2
S917 CH3
S922 A (DISP)
KST5
S995 LEFT
S997 RIGHT
S996 DOWN
S998 UP
KST6
KDT1
KDT2
KDT3
KDT4
R929 0R0
GRN
D904 CL170PGCD (AB)
R933 1K
R932 1K
R911 560
R912 560
R910 560
R909 560
R913 560
R914 560
R915 750
R916 750
R917 560
R918 560
R923 620
C907 R1
D903 CL170SBX
R920 560
R919 560
R921 560
R922 560
GREEN
CSG1107
CSG1112
GREEN

3.8 CD MECHANISM MODULE

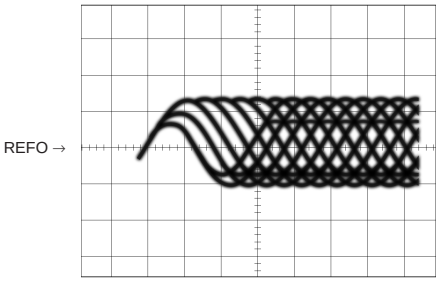



SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE
SWITCHES:
COMPOUND UNIT
S801 : HOME SWITCH.....ON-OFF
S802 : CLAMP SWITCH....ON-OFF
The underlined indicates the switch position.
Monitor land(Side A)
Monitor land(Side B)
Land for manual soldering
NOTE)
GND ...CD LSI
PGND ...Actuator, Motor Driver
AAGND ...Audio
These GND's are not connected to each other on PCB.
PGND is connected to a floating meachanism part by a screw.
D63710GC
P, SERVO, DSP, DAC
IC601 TA2063F
LPF
X201
CSS1456
16.934MHz
CN701
I/O
CN681
PGND
VD
5VD
GND
LOCK

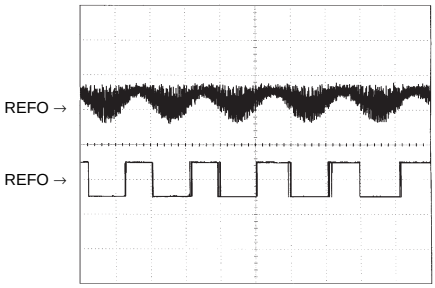
Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFO:2.5V

● Waveforms

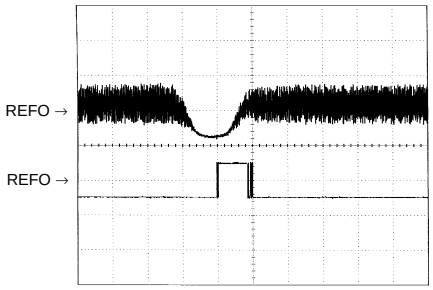
① RFI 0.5V/div. 0.5µs/div.
Normal mode: play



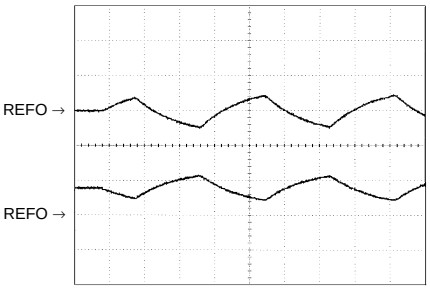
① CH1: RFI 1V/div. 0.5ms/div.
② CH2: MIRR 5V/div.
Test mode: Tracking open



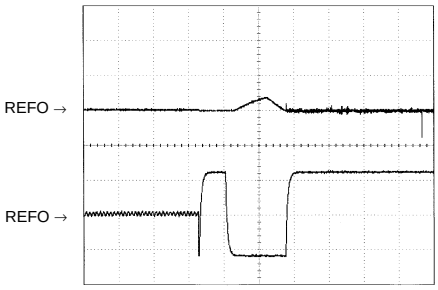
① CH1: RFI 1V/div. 0.5ms/div.
② CH2: MIRR 5V/div.
Normal mode: The defect part passes 800µm



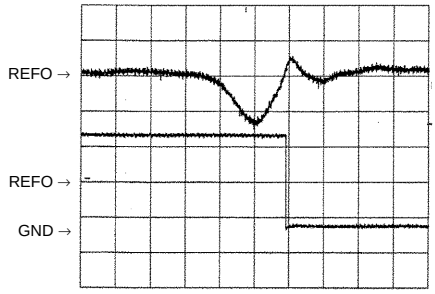
③ CH1: FD 0.5V/div. 0.2s/div.
④ CH2: FO+ 2V/div.
Test mode: No disc, Focus close



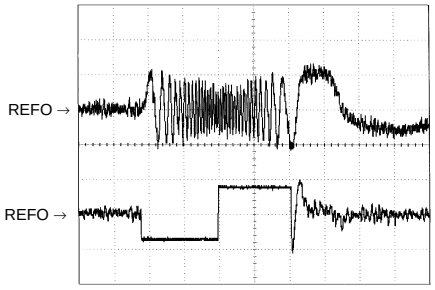
③ CH1: FD 0.5V/div. 0.2s/div.
⑤ CH2: FOK 2V/div.
Normal mode: Focus close



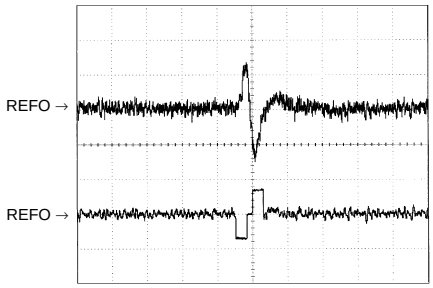
⑥ CH1: FE 0.5V/div. 1ms/div.
⑦ CH2: XSI 2V/div.
Normal mode: Focus close



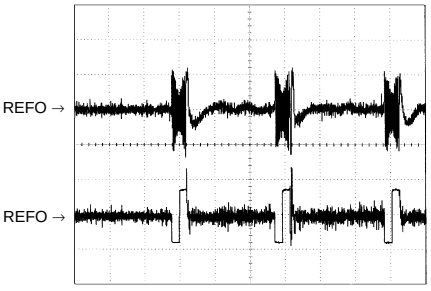
⑧ CH1: TE 0.5V/div. 0.5ms/div.
⑨ CH2: TD 0.5V/div.
Test mode: 32 tracks jump (REV)



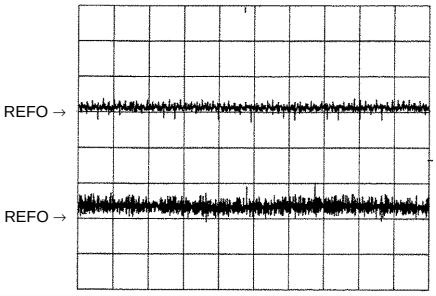
⑧ CH1: TE 0.5V/div. 0.5ms/div.
⑨ CH2: TD 0.5V/div.
Test mode: Single jump (REV)



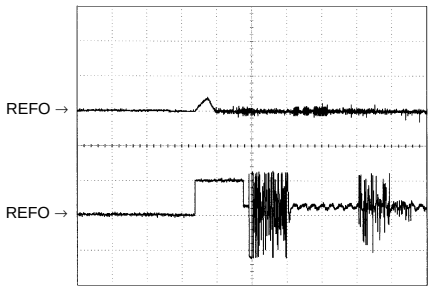
⑧ CH1: TE 0.5V/div. 5ms/div.
⑨ CH2: TD 0.5V/div.
Test mode: 100 tracks jump (REV)



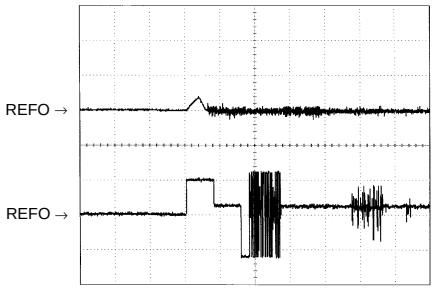
⑥ CH1: FE 0.1V/div. 20ms/div.
③ CH2: FD 0.2V/div.
Normal mode: Play



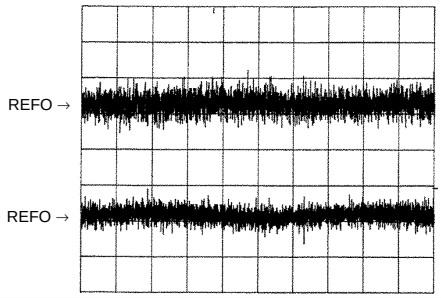
③ CH1: FD 0.5V/div. 0.5s/div.
⑩ CH2: MD 1V/div.
Normal mode: Focus close (12cm)



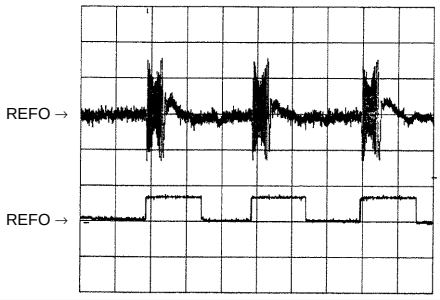
③ CH1: FD 0.5V/div. 0.5s/div.
⑩ CH2: MD 1V/div.
Normal mode: Focus close (8cm)



⑧ CH1: TE 0.2V/div. 20ms/div.
⑨ CH2: TD 0.2V/div.
Normal mode: play

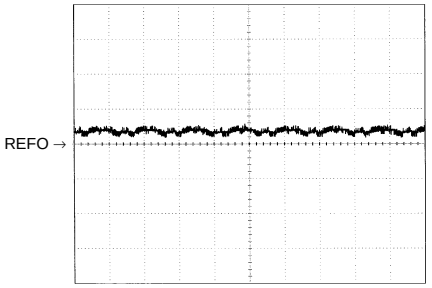


⑧ CH1: TE 0.5V/div. 5ms/div.
⑪ CH2: SD 0.5V/div.
TEST mode: 100 Tracks jump(FWD)

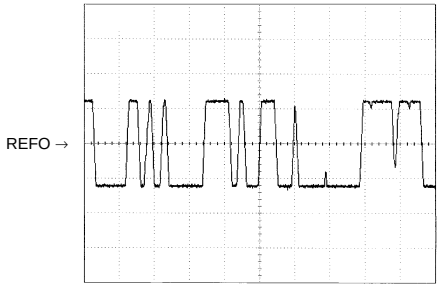


⑩ MD 0.5V/div. 0.1s/div.

Normal mode: Play (12cm)

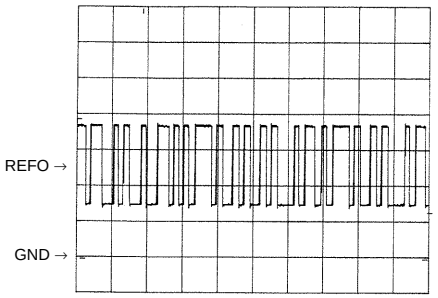


⑩ MD 1V/div. 10ms/div.
Normal mode:
Long Search (12cm)

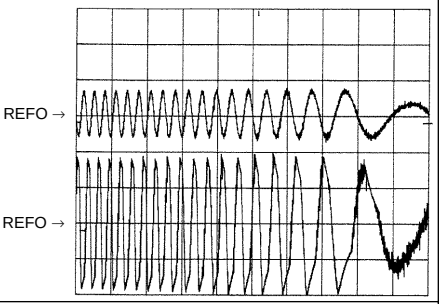


⑫ EFM 1V/div. 5µs/div.

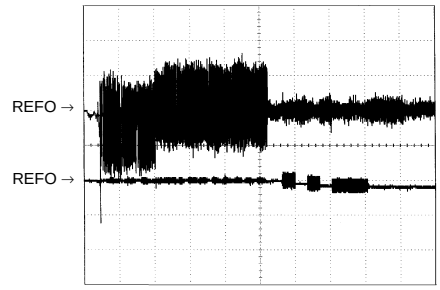
Normal mode: play



⑧ CH1: TE 1V/div. 2ms/div.
⑬ CH2: TEC 1V/div.
Test mode: Focus close
Tracking open

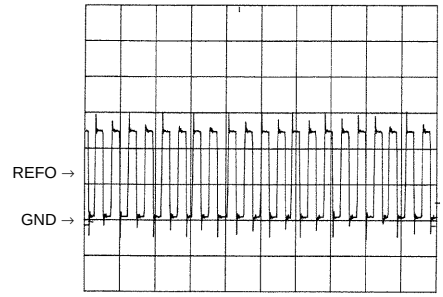


⑧ CH1: TE 0.5V/div. 0.2s/div.
⑥ CH2: FE 0.5V/div.
Normal mode: AGC after focus close



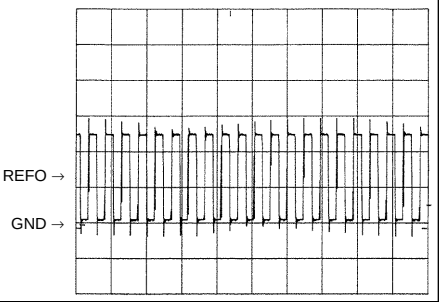
⑭ PLCK 2V/div. 0.5µs/div.

Normal mode: play



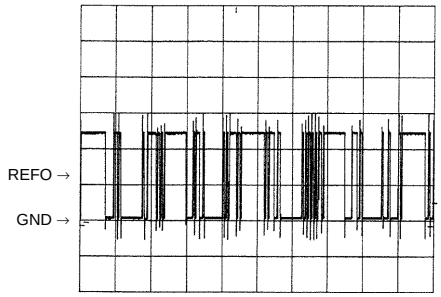
⑮ SCKO 2V/div. 1µs/div.

Normal mode: play



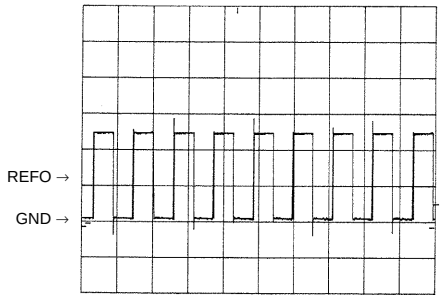
⑯ Dout 2V/div. 10µs/div.

Normal mode: play



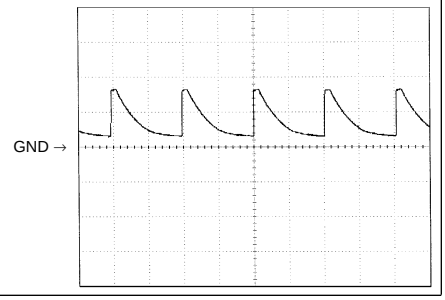
⑰ LRCK 2V/div. 20µs/div.

Normal mode: play

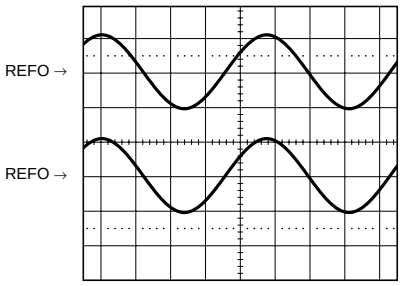


⑱ VD 5V/div. 50ms/div.

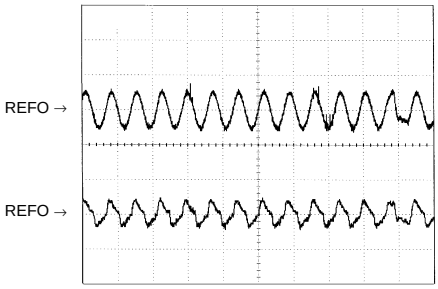
Normal mode: No disc



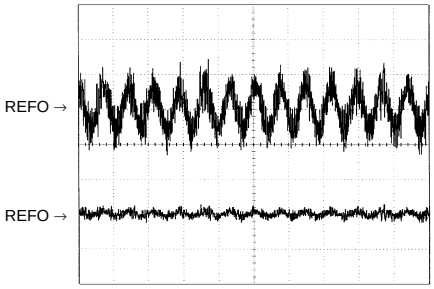
⑲ CH1: R OUT 1V/div.
⑳ CH2: L OUT 1V/div.
0.2ms/div.
Normal mode: Play (1kHz 0dB)



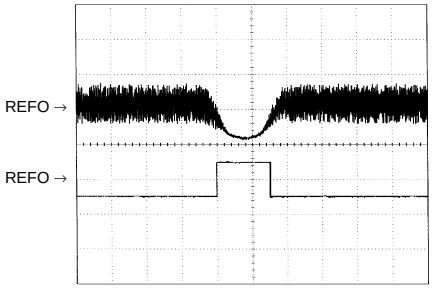
⑥ CH1: FE 0.2V/div.
③ CH2: FD 0.5V/div.
1ms/div.
Normal mode: During AGC



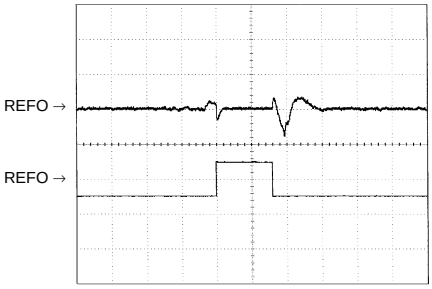
⑧ CH1: TE 0.2V/div.
⑨ CH2: TD 0.5V/div.
1ms/div.
Normal mode: During AGC



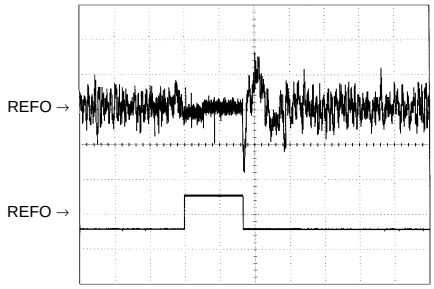
① CH1: RFI 1V/div.
㉑ CH2: HOLD 5V/div.
0.5ms/div.
Normal mode: The defect part passes 800µm(B.D)



③ CH1: FD 1V/div.
㉑ CH2: HOLD 5V/div.
0.5ms/div.
Normal mode: The defect part passes 800µm(B.D)



⑨ CH1: TD 0.1V/div.
㉑ CH2: HOLD 5V/div.
0.5ms/div.
Normal mode: The defect part passes 800µm(B.D)

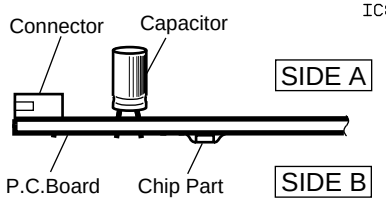


4. PCB CONNECTION DIAGRAM

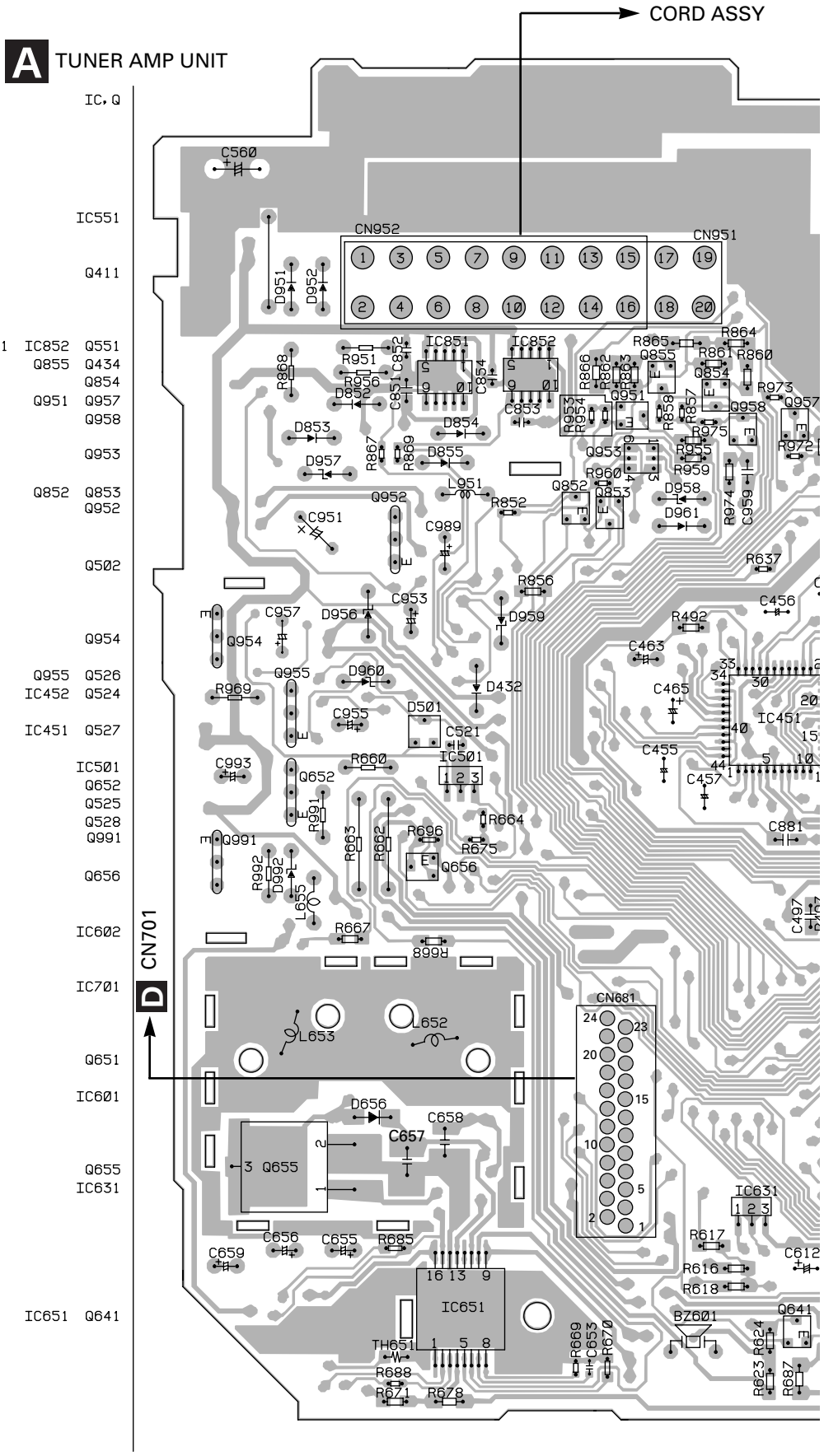
4.1 TUNER AMP UNIT

NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams

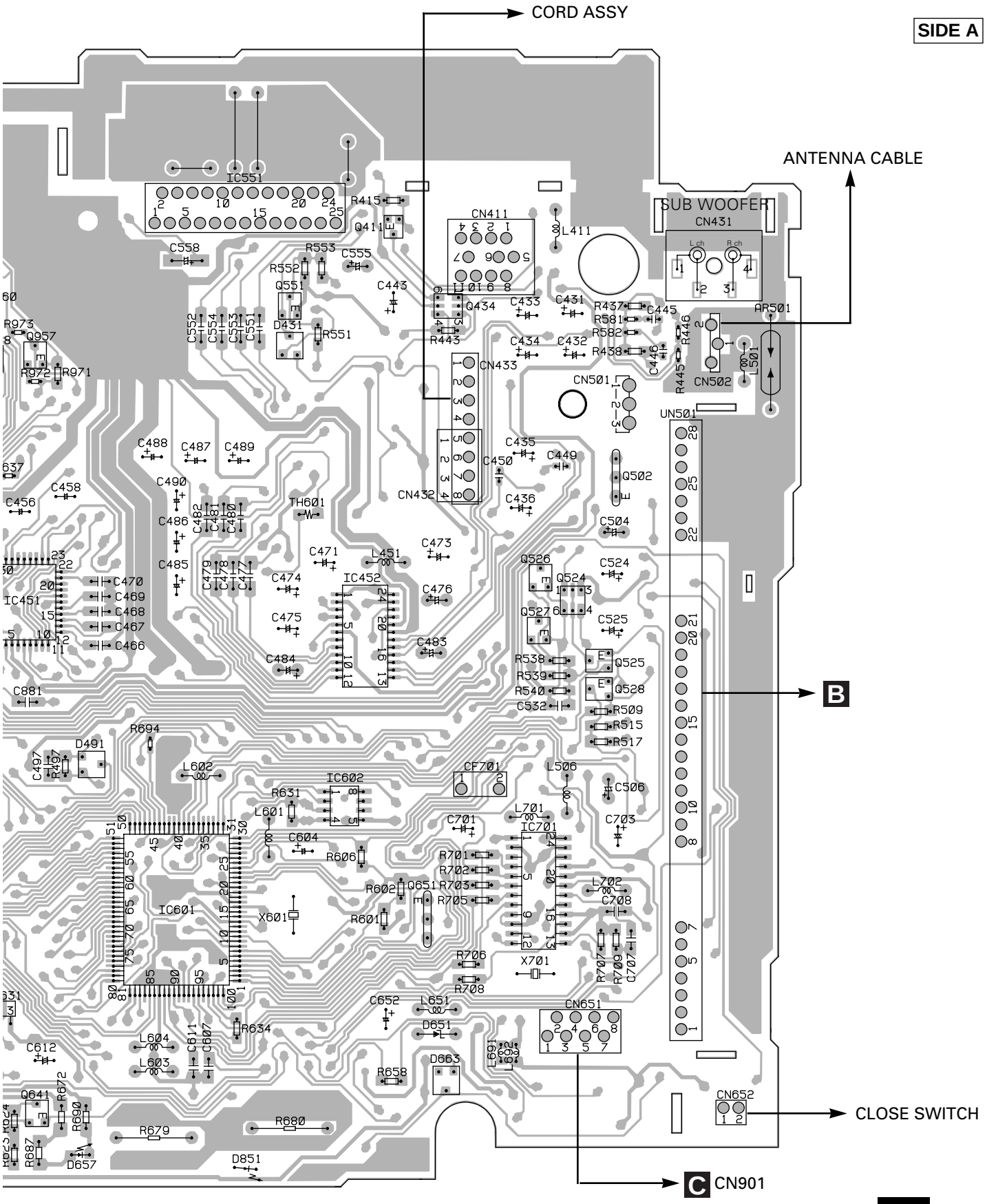


A TUNER AMP UNIT

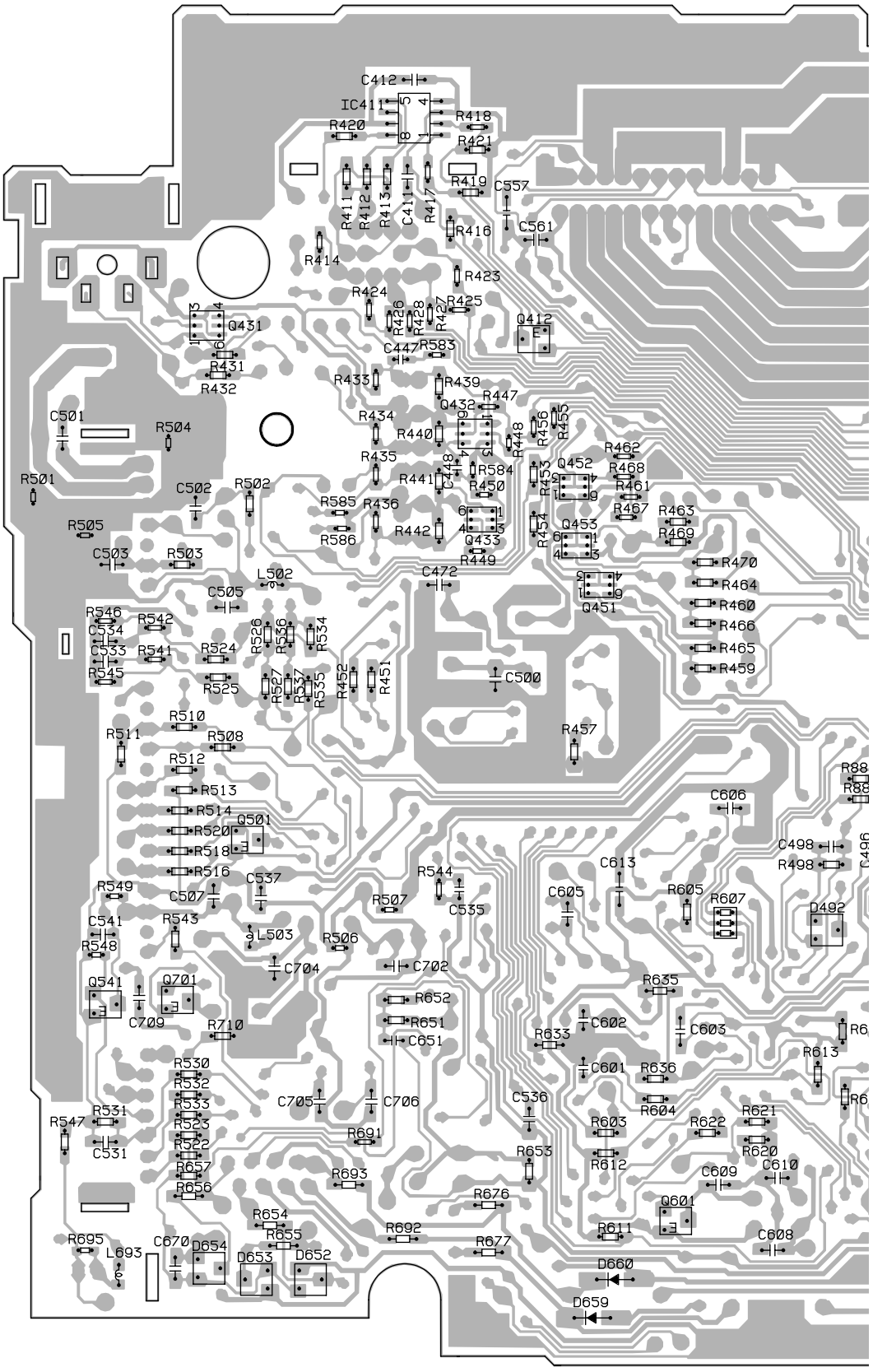


IC, Q

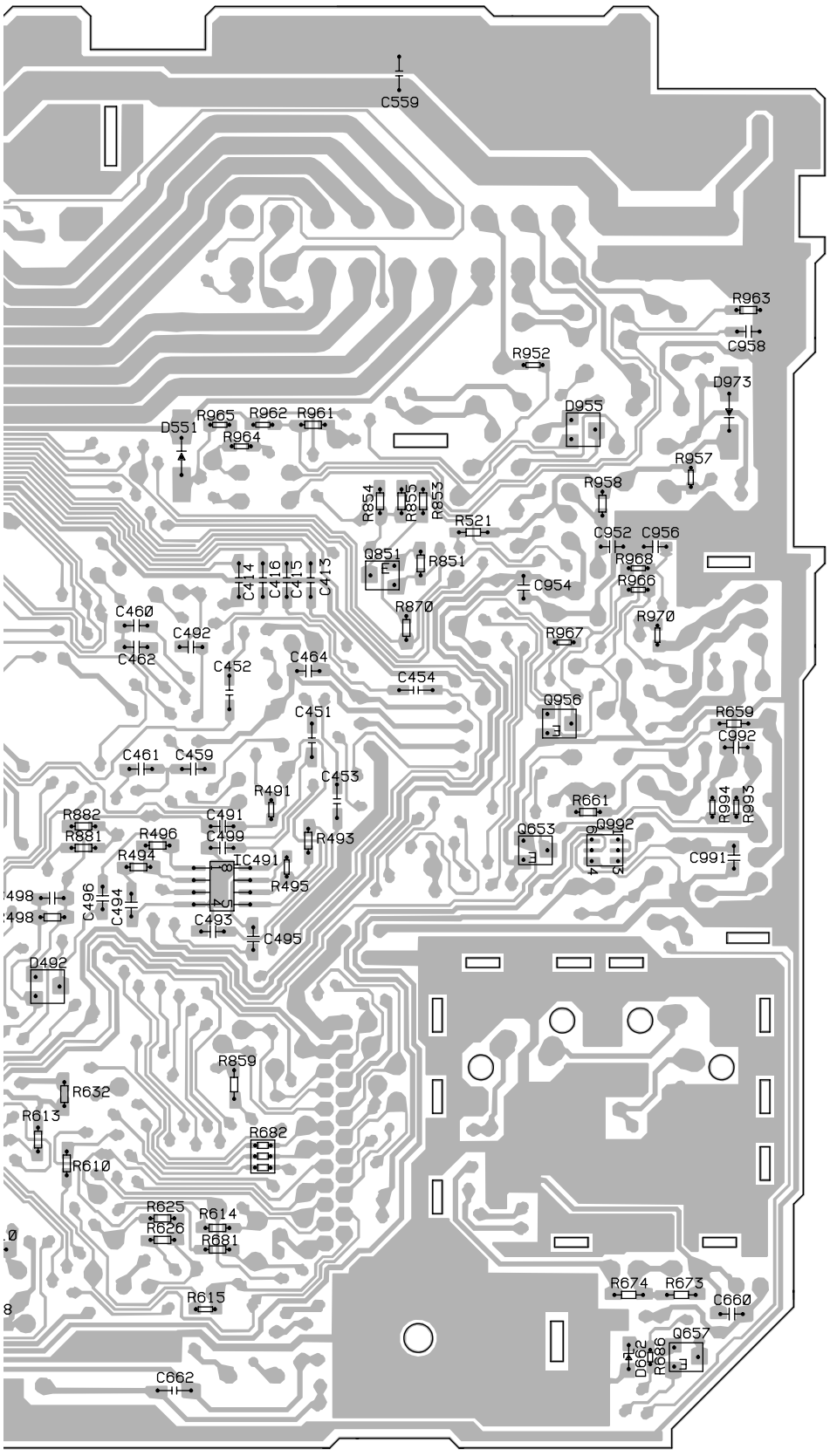
IC551
Q411
IC851 IC852 Q551
Q855 Q434
Q854
Q951 Q957
Q958
Q953
Q852 Q853
Q952
Q502
Q954
Q955 Q526
IC452 Q524
IC451 Q527
IC501
Q652
Q525
Q528
Q991
Q656
IC602
IC701
Q651
IC601
Q655
IC631
IC651 Q641


CORD ASSY
SIDE A
ANTENNA CABLE
SUB WOOFER
CN431
L ch
R ch
CN411
IC551
CN433
CN432
CN501
CN502
AR501
UN501
B
C CN901
CN652
CLOSE SWITCH
CN651
IC451
IC452
IC601
IC602
IC701
CF701
TH601
X601
X701

A TUNER AMP UNIT



SIDE B



IC, Q

IC411

Q431 Q412

Q432

Q452

Q453 Q851
Q433

Q451

Q956

Q653 Q992

Q501
IC491

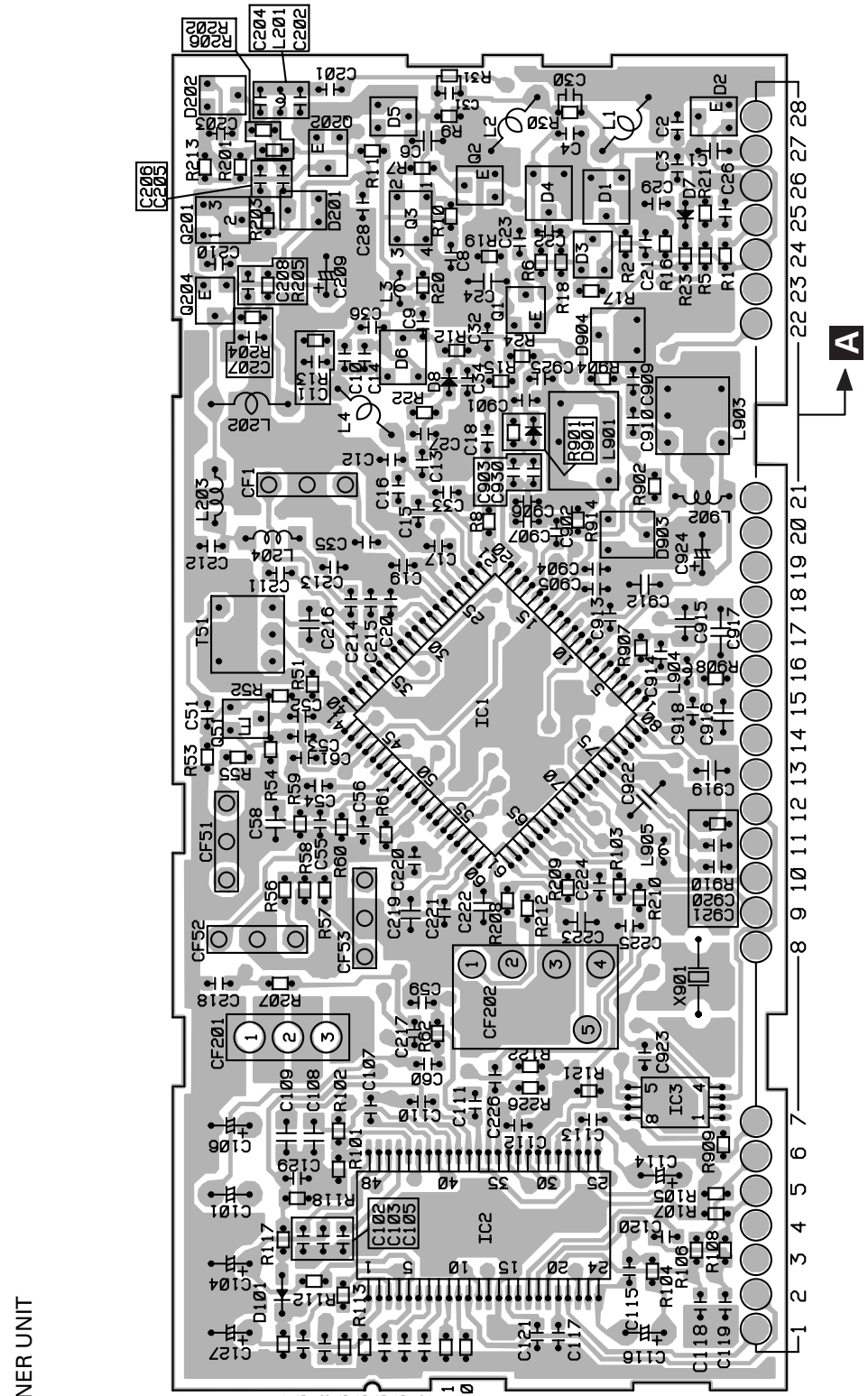
Q541 Q701

Q601

Q657

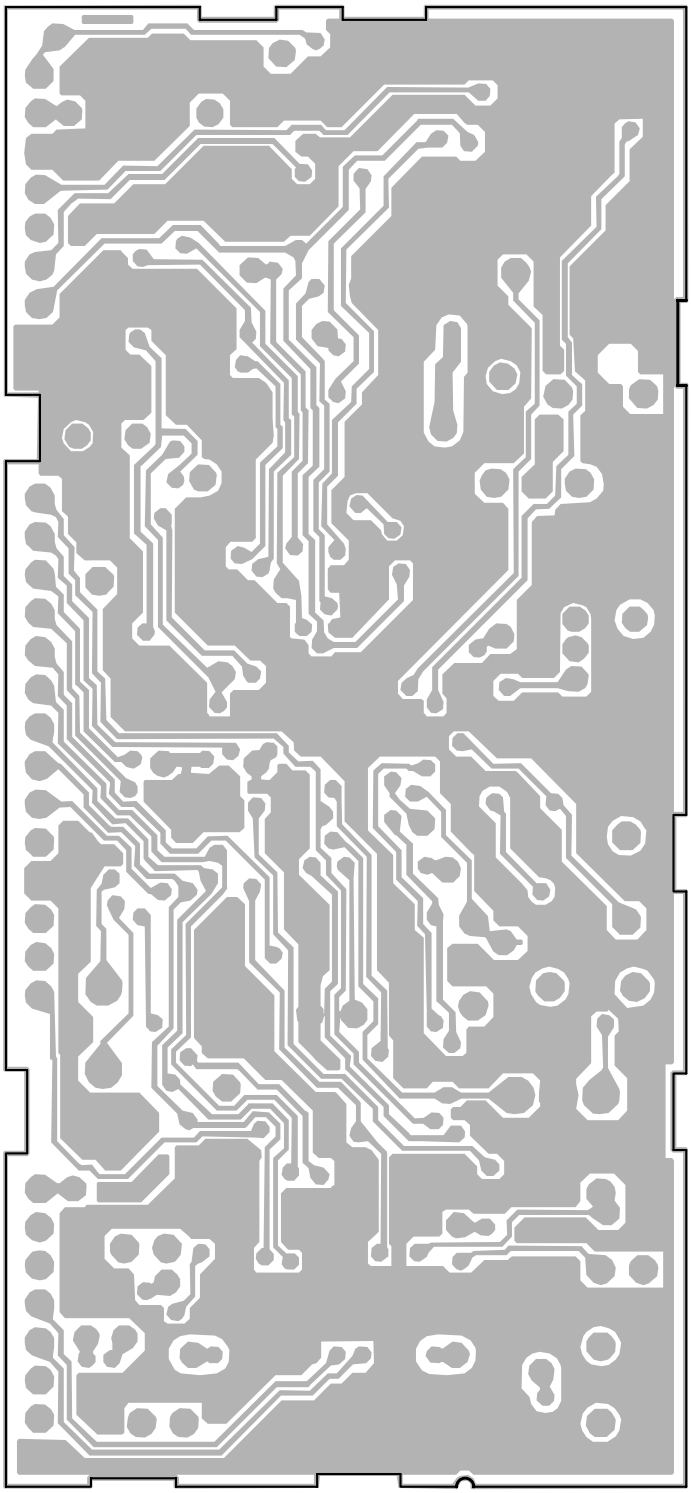
4.2 FM/AM TUNER UNIT

SIDE A



B FM/AM TUNER UNIT

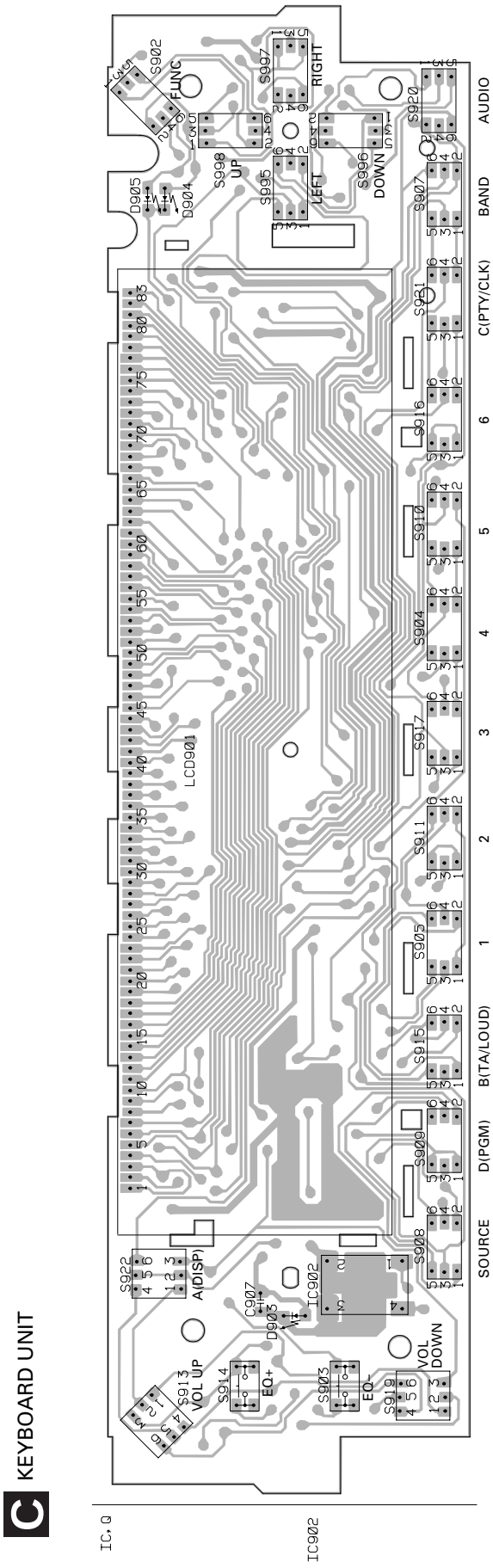
SIDE B

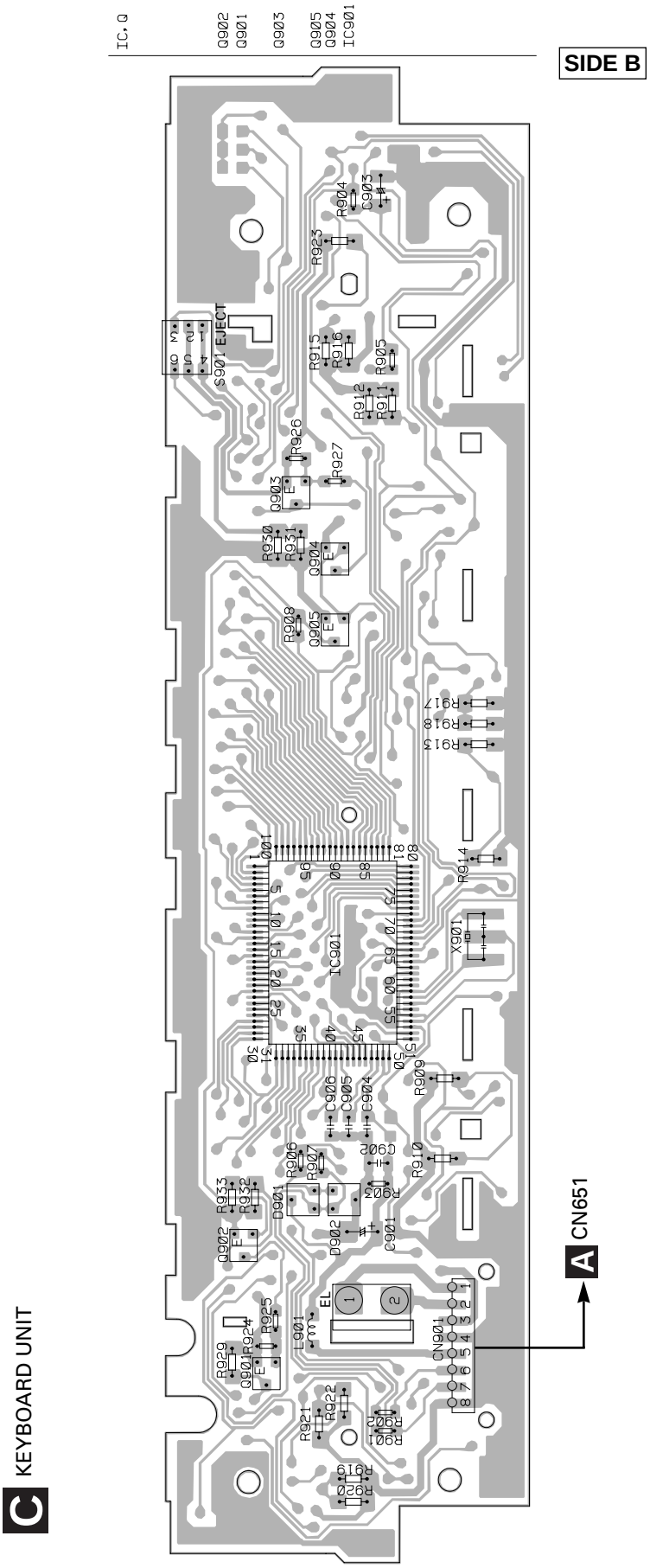


B FM/AM TUNER UNIT

4.3 KEYBOARD UNIT

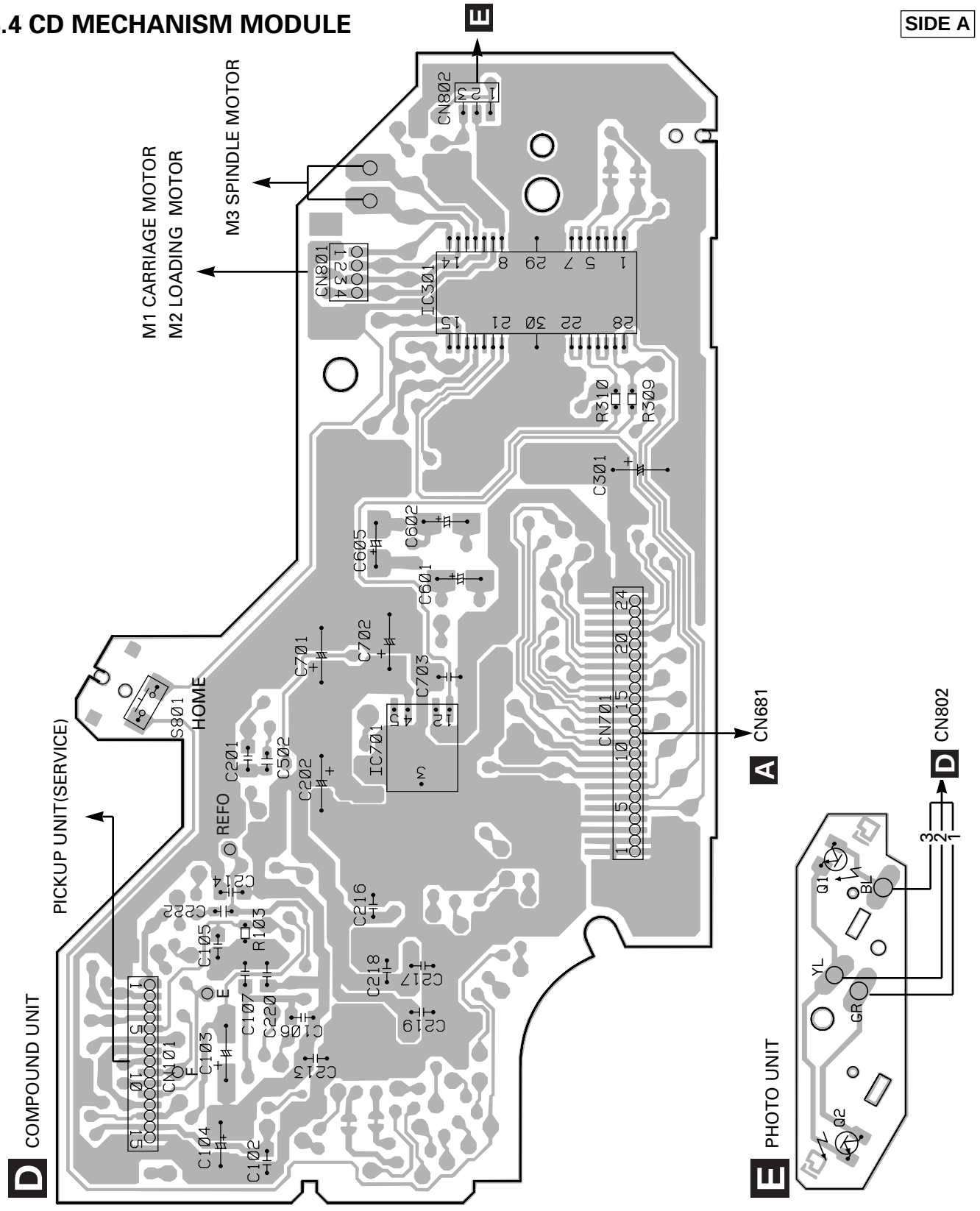
SIDE A




IC, Q
Q902
Q901
Q903
Q905
Q904
IC901
SIDE B
S901 EJECT
R904
C903
R923
R915
R916
R905
R912
R911
R926
R927
Q903
R930
R931
Q904
R908
Q905
R917
R918
R913
R914
X901
IC901
R909
C906
C905
C904
C902
R910
R906
R907
R933
R932
D901
D902
C901
Q902
R929
Q901
R924
R925
L901
EL
CN901
R921
R922
R901
R919
R920
A
CN651
C KEYBOARD UNIT

4.4 CD MECHANISM MODULE

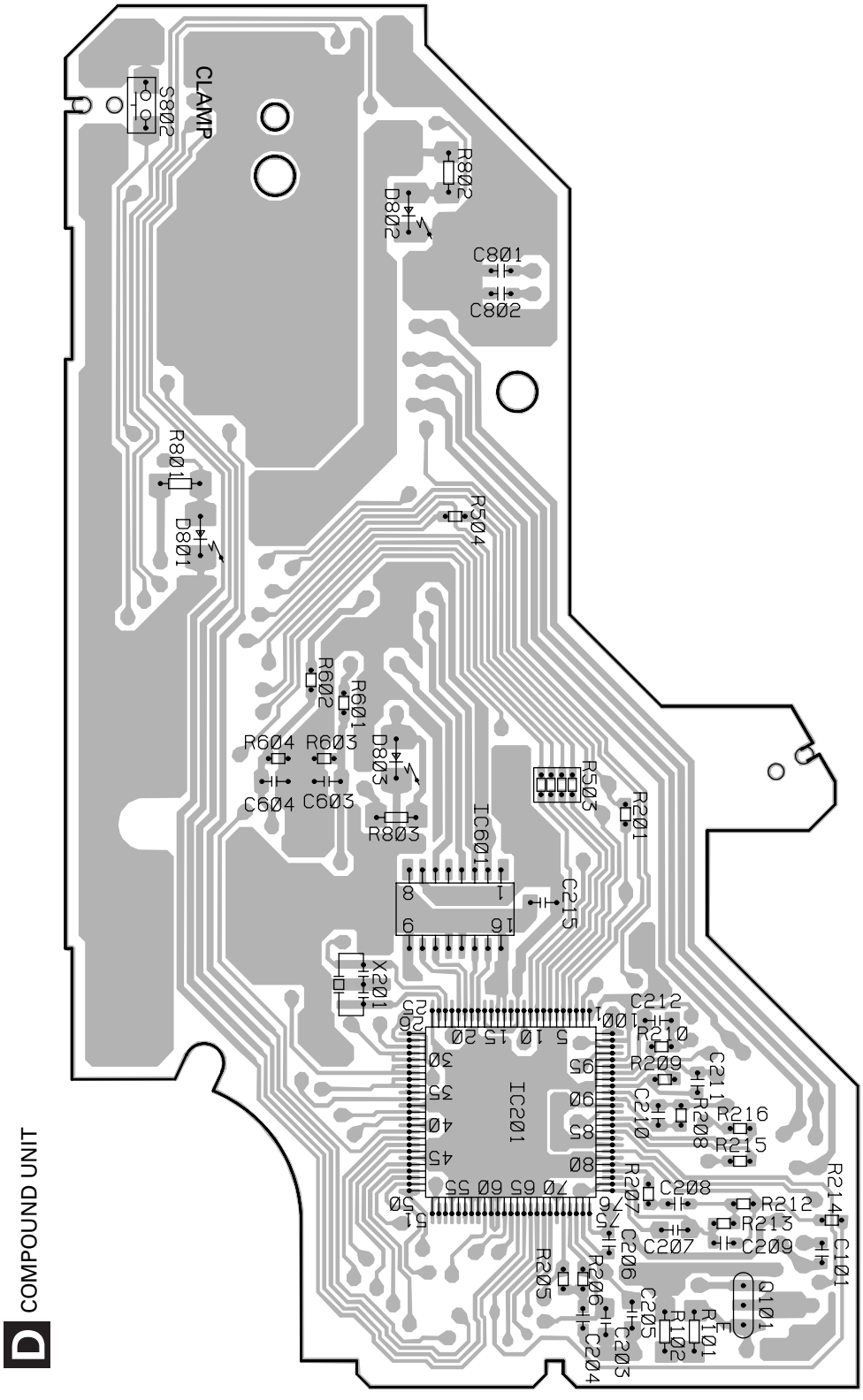
SIDE A



IC, Q

IC701 IC301

SIDE B



D COMPOUND UNIT

IC201
IC601
Q101
IC, Q

5. ELECTRICAL PARTS LIST

NOTES:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

A Unit Number : CWM6188
Unit Name : Tuner Amp Unit(DEH-P700R/UC)

MISCELLANEOUS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	411	IC	CA0008AM
IC	451	IC	PML004AF
IC	452	IC	PA2028A
IC	491	IC	NJM4558MD
IC	501	IC	S-81250PGPD
IC	551	IC	PAL005A
IC	601	IC	PE5004B
IC	631	IC	S-80734ANDYI
IC	651	IC	PML006A
IC	701	IC	PM4009A
IC	851	IC	TPD1018F
IC	852	IC	TPD1018F
Q	411	Transistor	2SA1586
Q	412	Transistor	DTC124EK
Q	431	Transistor	HN1C03F
Q	432	Transistor	HN1C03F
Q	433	Transistor	HN1C03F
Q	434	Transistor	IMD2A
Q	451	Transistor	IMH3A
Q	452	Transistor	IMH3A
Q	453	Transistor	IMH3A
Q	501	Transistor	DTA124EK
Q	502	Transistor	2SC1740S
Q	551	Transistor	DTC144EK
Q	601	Transistor	DTA114EK
Q	641	Transistor	DTC114EK
Q	651	Transistor	2SA933S
Q	652	Transistor	2SB1236
Q	653	Transistor	DTC124EK
Q	655	FET	2SK2356Z
Q	656	Transistor	2SC3295
Q	657	Transistor	2SC2412K
Q	701	Transistor	DTA124EK
Q	851	Transistor	2SA1037K
Q	852	Transistor	DTC124EK
Q	853	Transistor	2SC2412K
Q	854	Transistor	2SC2412K
Q	855	Transistor	2SC2412K
Q	951	Transistor	2SA1037K
Q	952	Transistor	2SC3673
Q	953	Transistor	IMX1
Q	954	Transistor	2SD2396
Q	955	Transistor	2SB1238
Q	956	Transistor	DTC114EK
Q	957	Chip Transistor	2SC2712
Q	958	Transistor	DTC114EK
Q	991	Transistor	2SD2396
Q	992	Transistor	IMD2A
D	431	Diode	MA152WK
D	432	Diode	1SS133

=====Circuit Symbol and No.		===Part Name	Part No.
D	491	Diode	DA204K
D	492	Diode	DA204K
D	501	Diode	MA3160(L)
D	551	Diode	1SR154-400
D	651	Diode	MTZ5R6J(C)
D	652	Diode	DA204K
D	653	Diode	DA204K
D	654	Diode	DA204K
D	656	Diode	U1JU44
D	657	LED	CL170PGCD(AB)
D	659	Diode	U1JU44
D	660	Diode	U1JU44
D	662	Diode	MA8082(M)
D	663	Diode	MA3062(M)
D	851	LED	BR4361F
D	852	Diode	ERA15-02VH
D	853	Diode	ERA15-02VH
D	854	Diode	ERA15-02VH
D	855	Diode	ERA15-02VH
D	951	Diode	ERA15-02VH
D	952	Diode	ERA15-02VH
D	955	Diode	MA152WK
D	956	Diode	HZS6L(B1)
D	957	Diode	HZS7L(C2)
D	958	Diode	HZS6L(C3)
D	959	Diode	HZS9L(A2)
D	960	Diode	HZS9L(B3)
D	961	Diode	ERA15-02VH
D	973	Diode	1SR154-400
D	992	Diode	HZS9L(B1)
L	411	Inductor	LAU3R3J
L	451	Ferri-Inductor	LAU101K
L	501	Ferri-Inductor	LAU4R7K
L	502	Inductor	CTF1399
L	503	Inductor	CTF1399
L	601	Inductor	LAU100K
L	602	Ferri-Inductor	LAU2R2K
L	603	Ferri-Inductor	LAU2R2K
L	604	Ferri-Inductor	LAU2R2K
L	651	Ferri-Inductor	LAU101K
L	652	Coil	CTH1228
L	653	Coil	CTH1228
L	655	Inductor	CTF1483
L	691	Inductor	CTF1399
L	692	Inductor	CTF1399
L	693	Inductor	CTF1399
L	701	Ferri-Inductor	LAU101K
L	702	Ferri-Inductor	LAU101K
L	951	Ferri-Inductor	LAU2R2K
TH	601	Thermistor	CCX1037
TH	651	Posistor	CCX1042
CF	701	Filter	CTF1071
X	601	Radiator 12.58291MHz	CSS1402
X	701	Crystal Resonator 3.648MHz	CSS1447
		FM/AM Tuner Unit	CWE1501

=====Circuit Symbol and No.		===Part Name	Part No.
BZ	601	Buzzer	CPV1050
AR	501		DSP-201M
RESISTORS			
R	411		RS1/10S620J
R	412		RS1/10S101J
R	413		RS1/10S101J
R	414		RS1/10S222J
R	415		RS1/10S332J
R	416		RS1/10S682J
R	417		RS1/10S102J
R	418		RS1/10S102J
R	419		RS1/10S473J
R	420		RS1/10S103J
R	421		RS1/10S473J
R	423		RS1/10S821J
R	424		RS1/10S821J
R	425		RS1/10S223J
R	426		RS1/10S223J
R	427		RS1/10S102J
R	428		RS1/10S102J
R	431		RS1/10S820J
R	432		RS1/10S820J
R	433		RS1/10S820J
R	434		RS1/10S820J
R	435		RS1/10S820J
R	436		RS1/10S820J
R	437		RS1/10S223J
R	438		RS1/10S223J
R	439		RS1/10S223J
R	440		RS1/10S223J
R	441		RS1/10S223J
R	442		RS1/10S223J
R	443		RS1/10S102J
R	445		RS1/16S103J
R	446		RS1/16S103J
R	447		RS1/10S103J
R	448		RS1/16S103J
R	449		RS1/16S103J
R	450		RS1/16S103J
R	457		RS1/10S203J
R	459		RS1/10S102J
R	460		RS1/10S102J
R	461		RS1/10S102J
R	462		RS1/10S102J
R	463		RS1/10S102J
R	464		RS1/10S102J
R	465		RS1/10S473J
R	466		RS1/10S473J
R	467		RS1/10S473J
R	468		RS1/10S473J
R	469		RS1/10S473J
R	470		RS1/10S473J
R	491		RS1/10S102J
R	492		RS1/10S102J
R	493		RS1/10S333J
R	494		RS1/10S333J
R	495		RS1/10S104J
R	496		RS1/10S104J
R	497		RS1/10S104J
R	498		RS1/10S104J
R	502		RS1/10S222J
R	503		RS1/10S222J
R	505		RS1/16S0R0J
R	508		RS1/10S681J
R	509		RS1/10S473J
R	511		RS1/10S473J
R	512		RS1/10S681J
R	513		RS1/10S473J

=====Circuit Symbol and No.		===Part Name	Part No.
R	514		RS1/10S681J
R	515		RS1/10S473J
R	516		RS1/10S681J
R	517		RS1/10S472J
R	518		RS1/10S103J
R	520		RS1/10S681J
R	521		RS1/8S151J
R	522		RS1/10S681J
R	523		RS1/10S473J
R	524		RS1/10S0R0J
R	525		RS1/10S0R0J
R	532		RS1/10S681J
R	533		RS1/10S473J
R	541		RS1/10S272J
R	542		RS1/10S272J
R	544		RS1/10S393J
R	545		RS1/10S162J
R	546		RS1/10S162J
R	547		RS1/10S0R0J
R	551		RS1/10S103J
R	552		RS1/10S103J
R	553		RS1/10S331J
R	581		RS1/16S331J
R	582		RS1/16S331J
R	583		RS1/16S331J
R	584		RS1/16S331J
R	585		RS1/16S331J
R	586		RS1/16S331J
R	603		RS1/10S473J
R	604		RS1/10S102J
R	606		RS1/10S473J
R	607		RA3C102J
R	610		RS1/10S222J
R	611		RN1/10SE2202D
R	612		RS1/10S473J
R	613		RS1/10S473J
R	614		RS1/10S222J
R	615		RS1/10S222J
R	616		RS1/10S473J
R	617		RS1/10S473J
R	618		RS1/10S473J
R	622		RS1/10S102J
R	623		RS1/10S202J
R	624		RS1/10S102J
R	625		RS1/10S102J
R	626		RS1/10S822J
R	633		RS1/8S473J
R	634		RS1/10S0R0J
R	637		RS1/16S101J
R	651		RS1/10S222J
R	652		RS1/10S472J
R	653		RS1/10S222J
R	654		RS1/8S222J
R	655		RS1/8S222J
R	656		RS1/8S222J
R	657		RS1/10S473J
R	658		RS1/10S472J
R	659		RS1/8S472J
R	660		RD1/4PU102J
R	661		RS1/10S1R0J
R	662		RD1/2PM390J
R	663		RD1/2PM390J
R	664		RS1/16S473J
R	667		RS1/10S103J
R	668		RS1/10S472J
R	669		RS1/16S912J
R	670		RS1/10S103J
R	671		RS1/10S472J
R	672		RS1/8S151J
R	673		RS1/8S225J

Circuit Symbol and No.	Part Name	Part No.
R 674		RS1/8S225J
R 675		RS1/16S473J
R 676		RS1/8S474J
R 677		RS1/8S474J
R 678		RS1/8S105J
R 679		RD1/2PM182J
R 680		RD1/2PM182J
R 681		RS1/10S681J
R 682		RA3C102J
R 685		RS1/10S152J
R 686		RS1/16S622J
R 687		RS1/8S151J
R 688		RS1/16S912J
R 690		RS1/8S151J
R 691		RS1/10S102J
R 692		RS1/8S391J
R 693		RS1/8S391J
R 694		RS1/16S473J
R 701		RS1/10S102J
R 702		RS1/10S102J
R 703		RS1/10S102J
R 705		RS1/10S681J
R 706		RS1/10S0R0J
R 707		RS1/10S0R0J
R 708		RS1/10S102J
R 709		RS1/10S0R0J
R 710		RS1/10S225J
R 851		RS1/10S223J
R 852		RS1/16S223J
R 853		RS1/10S103J
R 854		RS1/10S272J
R 855		RS1/10S223J
R 856		RS1/10S473J
R 857		RS1/16S473J
R 858		RS1/16S473J
R 859		RS1/8S471J
R 860		RS1/10S223J
R 861		RS1/10S272J
R 862		RS1/10S223J
R 863		RS1/10S272J
R 864		RS1/10S103J
R 865		RS1/8S102J
R 866		RS1/8S102J
R 867		RS1/16S103J
R 868		RD1/4PU102J
R 869		RS1/16S103J
R 870		RS1/10S102J
R 881		RS1/10S103J
R 882		RS1/10S102J
R 951		RD1/4PU102J
R 952		RS1/10S153J
R 953		RS1/16S472J
R 954		RS1/16S472J
R 955		RS1/10S102J
R 956		RD1/4PU102J
R 957		RS1/10S101J
R 958		RS1/10S622J
R 959		RS1/10S473J
R 960		RS1/16S473J
R 961		RS1/10S103J
R 962		RS1/10S473J
R 963		RS1/10S472J
R 964		RS1/10S103J
R 965		RS1/10S473J
R 966		RS1/10S473J
R 967		RS1/10S102J
R 968		RS1/10S102J
R 969		RD1/4PU221J
R 970		RS1/10S1R0J
R 971		RS1/10S473J
R 972		RS1/16S103J
R 973		RS1/16S473J
R 974		RS1/10S103J
R 975		RS1/16S473J
R 991		RD1/4PU221J
R 992		RD1/4PU221J
R 993		RS1/10S472J
R 994		RS1/10S222J
CAPACITORS		
C 411		CKSQYB104K25
C 412		CKSQYB473K25
C 413		CKSYB105K16
C 414		CKSYB105K16
C 415		CKSYB105K16
C 416		CKSYB105K16
C 431		CEJA100M16
C 432		CEJA100M16
C 433		CEJA100M16
C 434		CEJA100M16
C 435		CEJA100M16
C 436		CEJA100M16
C 443		CEJA220M16
C 445		CKLSRB222K50
C 446		CKLSRB222K50
C 447		CKLSRB222K50
C 448		CKLSRB222K50
C 449		CKLSRB222K50
C 450		CKLSRB222K50
C 451		CKSYB224K25
C 452		CKSYB224K25
C 453		CKSYB105K16
C 454		CKSYB105K16
C 455		CEJANP4R7M16
C 456		CEJANP4R7M16
C 457		CEJANP4R7M16
C 458		CEJANP4R7M16
C 459		CKSQYB473K25
C 460		CKSQYB473K25
C 461		CKSQYB473K25
C 462		CKSQYB473K25
C 463		CEJA470M10
C 464		CKSQYB104K25
C 465		CEJA100M16
C 466		CKSQYB153K50
C 467		CKSQYB473K25
C 468		CKSQYB123K50
C 469		CKSQYB333K50
C 470		CKSQYB153K50
C 471		CEJA100M16
C 472		CKSQYB471K50
C 473		CEJA100M16
C 474		CEJA100M16
C 475		CEJA100M16
C 476		CEAL330M25
C 477		CKSYB105K16
C 478		CKSYB105K16
C 479		CKSYB105K16
C 480		CKSYB105K16
C 481		CKSYB105K16

=====Circuit Symbol and No.		===Part Name	Part No.
C	482		CKSYB105K16
C	483		CEAL330M25
C	484		CASAQ4R7M16
C	485		CEAL4R7M35
C	486		CEAL4R7M35
C	487		CEAL4R7M35
C	488		CEAL4R7M35
C	489		CEAL4R7M35
C	490		CEAL4R7M35
C	491		CKLSQB152K50
C	492		CKLSQB152K50
C	493		CKSQYB104K25
C	494		CKSQYB104K25
C	495		CKSQYB104K25
C	496		CKSQYB104K25
C	497		CKSQYB104K25
C	498		CKSQYB104K25
C	499		CKSQYB103K25
C	500		CKSQYB104K25
C	501		CKSQYB103K25
C	502		CKSQYB223K50
C	503		CKSQYB223K50
C	504		CASAQ150K16
C	505		CKSQYB102K50
C	506		CEAL101M6R3
C	507		CKSQYB473K25
C	521		CKSRYB102K50
C	533		CKSQYB183K50
C	534		CKSQYB183K50
C	535		CKSQYB472K50
C	536		CCSQCH101J50
C	537		CCSQCH101J50
C	551		CKSYB224K25
C	552		CKSYB224K25
C	553		CKSYB224K25
C	554		CKSYB224K25
C	555		CEJA330M10
C	557		CKSYB105K16
C	558	10µF/16V	CCH1219
C	559		CKSYB104K50
C	560	3300µF/16V	CCH1330
C	561		CKSQYB473K25
C	601		CCSQCH200J50
C	602		CCSQCH200J50
C	603		CKSYB105K16
C	604		CEAL4R7M35
C	605		CCSQCH101J50
C	607		CCSQCH101J50
C	608		CCSQCH101J50
C	609		CCSQCH101J50
C	610		CCSQCH101J50
C	611		CCSQCH101J50
C	612		CEAL2R2M50
C	651		CCSQCH101J50
C	652		CEAL4R7M35
C	653		CKSRYB222K50
C	655	2.2µF/25V	CCH1327
C	656	2.2µF/25V	CCH1327
C	657	0.1µF	CCG1096
C	658	4.7µF	CCG1089
C	659		CEJA470M16
C	660		CKSQYB102K50
C	662	150pF	CCG1095
C	670		CKSQYB473K25
C	701		CEJA220M6R3

=====Circuit Symbol and No.		===Part Name	Part No.
C	702		CKSQYB104K25
C	703		CEJA220M6R3
C	704		CKSQYB104K25
C	705		CCSQCH270J50
C	706		CCSQCH270J50
C	707		CKSQYB104K25
C	708		CKSQYB471K50
C	709		CKSQYB471K50
C	851		CKSQYB473K25
C	853		CKSRYB473K16
C	881		CKSQYB473K25
C	951	470µF/16V	CCH1325
C	952		CKSQYB473K25
C	953		CEJA101M10
C	954		CKSQYB473K25
C	955		CEJA101M16
C	956		CKSQYB103K25
C	957	330µF/16V	CCH1326
C	958		CKSQYB102K50
C	959		CKSQYB105K16
C	989	470µF/16V	CCH1183
C	991		CKSQYB473K25
C	992		CKSQYB102K50
C	993		CEJA101M10

A Unit Number : CWM6189
Unit Name : Tuner Amp Unit(DEH-P7000R/UC)

MISCELLANEOUS

IC	411	IC	CA0008AM
IC	451	IC	PML004AF
IC	452	IC	PA2028A
IC	491	IC	NJM4558MD
IC	501	IC	S-81250PGPD
IC	551	IC	PAL005A
IC	601	IC	PE5004B
IC	631	IC	S-80734ANDYI
IC	651	IC	PML006A
IC	701	IC	PM4009A
IC	851	IC	TPD1018F
Q	411	Transistor	2SA1586
Q	412	Transistor	DTC124EK
Q	431	Transistor	HN1C03F
Q	432	Transistor	HN1C03F
Q	433	Transistor	HN1C03F
Q	434	Transistor	IMD2A
Q	451	Transistor	IMH3A
Q	452	Transistor	IMH3A
Q	453	Transistor	IMH3A
Q	501	Transistor	DTA124EK
Q	502	Transistor	2SC1740S
Q	551	Transistor	DTC144EK
Q	601	Transistor	DTA114EK
Q	641	Transistor	DTC114EK
Q	651	Transistor	2SA933S
Q	652	Transistor	2SB1236
Q	653	Transistor	DTC124EK
Q	655	FET	2SK2356Z
Q	656	Transistor	2SC3295
Q	657	Transistor	2SC2412K
Q	701	Transistor	DTA124EK
Q	851	Transistor	2SA1037K
Q	852	Transistor	DTC124EK
Q	853	Transistor	2SC2412K
Q	951	Transistor	2SA1037K
Q	952	Transistor	2SC3673
Q	953	Transistor	IMX1
Q	954	Transistor	2SD2396
Q	955	Transistor	2SB1238

Circuit Symbol and No.		Part Name	Part No.
Q	956	Transistor	DTC114EK
Q	957	Chip Transistor	2SC2712
Q	958	Transistor	DTC114EK
Q	991	Transistor	2SD2396
Q	992	Transistor	IMD2A
D	431	Diode	MA152WK
D	432	Diode	1SS133
D	491	Diode	DA204K
D	492	Diode	DA204K
D	501	Diode	MA3160(L)
D	551	Diode	1SR154-400
D	651	Diode	MTZ5R6J(C)
D	652	Diode	DA204K
D	653	Diode	DA204K
D	654	Diode	DA204K
D	656	Diode	U1JU44
D	657	LED	CL170PGCD(AB)
D	659	Diode	U1JU44
D	660	Diode	U1JU44
D	662	Diode	MA8082(M)
D	663	Diode	MA3062(M)
D	851	LED	BR4361F
D	852	Diode	ERA15-02VH
D	853	Diode	ERA15-02VH
D	951	Diode	ERA15-02VH
D	952	Diode	ERA15-02VH
D	955	Diode	MA152WK
D	956	Diode	HZS6L(B1)
D	957	Diode	HZS7L(C2)
D	958	Diode	HZS6L(C3)
D	959	Diode	HZS9L(A2)
D	960	Diode	HZS9L(B3)
D	961	Diode	ERA15-02VH
D	973	Diode	1SR154-400
D	992	Diode	HZS9L(B1)
L	411	Inductor	LAU3R3J
L	451	Ferri-Inductor	LAU101K
L	501	Ferri-Inductor	LAU4R7K
L	502	Inductor	CTF1399
L	503	Inductor	CTF1399
L	601	Inductor	LAU100K
L	602	Ferri-Inductor	LAU2R2K
L	603	Ferri-Inductor	LAU2R2K
L	604	Ferri-Inductor	LAU2R2K
L	651	Ferri-Inductor	LAU101K
L	652	Coil	CTH1228
L	653	Coil	CTH1228
L	655	Inductor	CTF1483
L	691	Inductor	CTF1399
L	692	Inductor	CTF1399
L	693	Inductor	CTF1399
L	701	Ferri-Inductor	LAU101K
L	702	Ferri-Inductor	LAU101K
L	951	Ferri-Inductor	LAU2R2K
TH	601	Thermistor	CCX1037
TH	651	Posistor	CCX1042
CF	701	Filter	CTF1071
X	601	Radiator 12.58291MHz	CSS1402
X	701	Crystal Resonator 3.648MHz	CSS1447
		FM/AM Tuner Unit	CWE1501
BZ	601	Buzzer	CPV1050
AR	501		DSP-201M

Circuit Symbol and No.		Part Name	Part No.
RESISTORS			
R	411		RS1/10S620J
R	412		RS1/10S101J
R	413		RS1/10S101J
R	414		RS1/10S222J
R	415		RS1/10S332J
R	416		RS1/10S682J
R	417		RS1/10S102J
R	418		RS1/10S102J
R	419		RS1/10S473J
R	420		RS1/10S103J
R	421		RS1/10S473J
R	423		RS1/10S821J
R	424		RS1/10S821J
R	425		RS1/10S223J
R	426		RS1/10S223J
R	427		RS1/10S102J
R	428		RS1/10S102J
R	431		RS1/10S820J
R	432		RS1/10S820J
R	433		RS1/10S820J
R	434		RS1/10S820J
R	435		RS1/10S820J
R	436		RS1/10S820J
R	437		RS1/10S223J
R	438		RS1/10S223J
R	439		RS1/10S223J
R	440		RS1/10S223J
R	441		RS1/10S223J
R	442		RS1/10S223J
R	443		RS1/10S102J
R	445		RS1/16S103J
R	446		RS1/16S103J
R	447		RS1/10S103J
R	448		RS1/16S103J
R	449		RS1/16S103J
R	450		RS1/16S103J
R	457		RS1/10S203J
R	459		RS1/10S102J
R	460		RS1/10S102J
R	461		RS1/10S102J
R	462		RS1/10S102J
R	463		RS1/10S102J
R	464		RS1/10S102J
R	465		RS1/10S473J
R	466		RS1/10S473J
R	467		RS1/10S473J
R	468		RS1/10S473J
R	469		RS1/10S473J
R	470		RS1/10S473J
R	491		RS1/10S102J
R	492		RS1/10S102J
R	493		RS1/10S333J
R	494		RS1/10S333J
R	495		RS1/10S104J
R	496		RS1/10S104J
R	497		RS1/10S104J
R	498		RS1/10S104J
R	502		RS1/10S222J
R	503		RS1/10S222J
R	505		RS1/16S0R0J
R	508		RS1/10S681J
R	509		RS1/10S473J
R	511		RS1/10S473J
R	512		RS1/10S681J
R	513		RS1/10S473J

=====Circuit Symbol and No.	===Part Name	Part No.
R 514		RS1/10S681J
R 515		RS1/10S473J
R 516		RS1/10S681J
R 517		RS1/10S472J
R 518		RS1/10S103J
R 520		RS1/10S681J
R 521		RS1/8S151J
R 522		RS1/10S681J
R 523		RS1/10S473J
R 524		RS1/10S0R0J
R 525		RS1/10S0R0J
R 532		RS1/10S681J
R 533		RS1/10S473J
R 541		RS1/10S272J
R 542		RS1/10S272J
R 544		RS1/10S393J
R 545		RS1/10S162J
R 546		RS1/10S162J
R 547		RS1/10S0R0J
R 551		RS1/10S103J
R 552		RS1/10S103J
R 553		RS1/10S331J
R 581		RS1/16S331J
R 582		RS1/16S331J
R 583		RS1/16S331J
R 584		RS1/16S331J
R 585		RS1/16S331J
R 586		RS1/16S331J
R 603		RS1/10S473J
R 604		RS1/10S102J
R 606		RS1/10S473J
R 607		RA3C102J
R 610		RS1/10S222J
R 611		RN1/10SE2202D
R 612		RS1/10S473J
R 614		RS1/10S222J
R 615		RS1/10S222J
R 616		RS1/10S473J
R 617		RS1/10S473J
R 618		RS1/10S473J
R 622		RS1/10S102J
R 623		RS1/10S202J
R 624		RS1/10S102J
R 625		RS1/10S102J
R 626		RS1/10S822J
R 633		RS1/8S473J
R 634		RS1/10S0R0J
R 637		RS1/16S101J
R 651		RS1/10S222J
R 652		RS1/10S472J
R 653		RS1/10S222J
R 654		RS1/8S222J
R 655		RS1/8S222J
R 656		RS1/8S222J
R 657		RS1/10S473J
R 658		RS1/10S472J
R 659		RS1/8S472J
R 660		RD1/4PU102J
R 661		RS1/10S1R0J
R 662		RD1/2PM390J
R 663		RD1/2PM390J
R 664		RS1/16S473J
R 667		RS1/10S103J
R 668		RS1/10S472J
R 669		RS1/16S912J

=====Circuit Symbol and No.	===Part Name	Part No.
R 670		RS1/10S103J
R 671		RS1/10S472J
R 672		RS1/8S151J
R 673		RS1/8S225J
R 674		RS1/8S225J
R 675		RS1/16S473J
R 676		RS1/8S474J
R 677		RS1/8S474J
R 678		RS1/8S105J
R 679		RD1/2PM182J
R 680		RD1/2PM182J
R 681		RS1/10S681J
R 682		RA3C102J
R 685		RS1/10S152J
R 686		RS1/16S622J
R 687		RS1/8S151J
R 688		RS1/16S912J
R 690		RS1/8S151J
R 691		RS1/10S102J
R 692		RS1/8S391J
R 693		RS1/8S391J
R 694		RS1/16S473J
R 701		RS1/10S102J
R 702		RS1/10S102J
R 703		RS1/10S102J
R 705		RS1/10S681J
R 706		RS1/10S0R0J
R 707		RS1/10S0R0J
R 708		RS1/10S102J
R 709		RS1/10S0R0J
R 710		RS1/10S225J
R 851		RS1/10S223J
R 852		RS1/16S223J
R 853		RS1/10S103J
R 854		RS1/10S272J
R 855		RS1/10S223J
R 856		RS1/10S473J
R 857		RS1/16S473J
R 858		RS1/16S473J
R 859		RS1/8S471J
R 867		RS1/16S103J
R 868		RD1/4PU102J
R 870		RS1/10S102J
R 881		RS1/10S103J
R 882		RS1/10S102J
R 951		RD1/4PU102J
R 952		RS1/10S153J
R 953		RS1/16S472J
R 954		RS1/16S472J
R 955		RS1/10S102J
R 956		RD1/4PU102J
R 957		RS1/10S101J
R 958		RS1/10S622J
R 959		RS1/10S473J
R 960		RS1/16S473J
R 961		RS1/10S103J
R 962		RS1/10S473J
R 963		RS1/10S472J
R 964		RS1/10S103J
R 965		RS1/10S473J
R 966		RS1/10S473J
R 967		RS1/10S102J
R 968		RS1/10S102J
R 969		RD1/4PU221J
R 970		RS1/10S1R0J

=====Circuit Symbol and No.	===Part Name	Part No.
R 971		RS1/10S473J
R 972		RS1/16S103J
R 973		RS1/16S473J
R 974		RS1/10S103J
R 975		RS1/16S473J
R 991		RD1/4PU221J
R 992		RD1/4PU221J
R 993		RS1/10S472J
R 994		RS1/10S222J
CAPACITORS		
C 411		CKSQYB104K25
C 412		CKSQYB473K25
C 413		CKSYB105K16
C 414		CKSYB105K16
C 415		CKSYB105K16
C 416		CKSYB105K16
C 431		CEJA100M16
C 432		CEJA100M16
C 433		CEJA100M16
C 434		CEJA100M16
C 435		CEJA100M16
C 436		CEJA100M16
C 443		CEJA220M16
C 445		CKLSRB222K50
C 446		CKLSRB222K50
C 447		CKLSRB222K50
C 448		CKLSRB222K50
C 449		CKLSRB222K50
C 450		CKLSRB222K50
C 451		CKSYB224K25
C 452		CKSYB224K25
C 453		CKSYB105K16
C 454		CKSYB105K16
C 455		CEJANP4R7M16
C 456		CEJANP4R7M16
C 457		CEJANP4R7M16
C 458		CEJANP4R7M16
C 459		CKSQYB473K25
C 460		CKSQYB473K25
C 461		CKSQYB473K25
C 462		CKSQYB473K25
C 463		CEJA470M10
C 464		CKSQYB104K25
C 465		CEJA100M16
C 466		CKSQYB153K50
C 467		CKSQYB473K25
C 468		CKSQYB123K50
C 469		CKSQYB333K50
C 470		CKSQYB153K50
C 471		CEJA100M16
C 472		CKSQYB471K50
C 473		CEJA100M16
C 474		CEJA100M16
C 475		CEJA100M16
C 476		CEAL330M25
C 477		CKSYB105K16
C 478		CKSYB105K16
C 479		CKSYB105K16
C 480		CKSYB105K16
C 481		CKSYB105K16
C 482		CKSYB105K16
C 483		CEAL330M25
C 484		CASAQ4R7M16
C 485		CEAL4R7M35
C 486		CEAL4R7M35

=====Circuit Symbol and No.	===Part Name	Part No.
C 487		CEAL4R7M35
C 488		CEAL4R7M35
C 489		CEAL4R7M35
C 490		CEAL4R7M35
C 491		CKLSQB152K50
C 492		CKLSQB152K50
C 493		CKSQYB104K25
C 494		CKSQYB104K25
C 495		CKSQYB104K25
C 496		CKSQYB104K25
C 497		CKSQYB104K25
C 498		CKSQYB104K25
C 499		CKSQYB103K25
C 500		CKSQYB104K25
C 501		CKSQYB103K25
C 502		CKSQYB223K50
C 503		CKSQYB223K50
C 504		CASAQ150K16
C 505		CKSQYB102K50
C 506		CEAL101M6R3
C 507		CKSQYB473K25
C 521		CKSRYB102K50
C 533		CKSQYB183K50
C 534		CKSQYB183K50
C 535		CKSQYB472K50
C 536		CCSQCH101J50
C 537		CCSQCH101J50
C 551		CKSYB224K25
C 552		CKSYB224K25
C 553		CKSYB224K25
C 554		CKSYB224K25
C 555		CEJA330M10
C 557		CKSYB105K16
C 558	10µF/16V	CCH1219
C 559		CKSYB104K50
C 560	330µF/16V	CCH1330
C 561		CKSQYB473K25
C 601		CCSQCH200J50
C 602		CCSQCH200J50
C 603		CKSYB105K16
C 604		CEAL4R7M35
C 605		CCSQCH101J50
C 607		CCSQCH101J50
C 608		CCSQCH101J50
C 609		CCSQCH101J50
C 610		CCSQCH101J50
C 611		CCSQCH101J50
C 612		CEAL2R2M50
C 651		CCSQCH101J50
C 652		CEAL4R7M35
C 653		CKSRYB222K50
C 655	2.2µF/25V	CCH1327
C 656	2.2µF/25V	CCH1327
C 657	0.1µF	CCG1096
C 658	4.7µF	CCG1089
C 659		CEJA470M16
C 660		CKSQYB102K50
C 662	150pF	CCG1095
C 670		CKSQYB473K25
C 701		CEJA220M6R3
C 702		CKSQYB104K25
C 703		CEJA220M6R3
C 704		CKSQYB104K25
C 705		CCSQCH270J50
C 706		CCSQCH270J50

=====Circuit Symbol and No.		===Part Name	Part No.
C	707		CKSQYB104K25
C	708		CKSQYB471K50
C	709		CKSQYB471K50
C	851		CKSQYB473K25
C	881		CKSQYB473K25
C	951	470µF/16V	CCH1325
C	952		CKSQYB473K25
C	953		CEJA101M10
C	954		CKSQYB473K25
C	955		CEJA101M16
C	956		CKSQYB103K25
C	957	330µF/16V	CCH1326
C	958		CKSQYB102K50
C	959		CKSQYB105K16
C	989	470µF/16V	CCH1183
C	991		CKSQYB473K25
C	992		CKSQYB102K50
C	993		CEJA101M10

A Unit Number : CWM6187
Unit Name : Tuner Amp Unit(DEH-P7050/ES)

MISCELLANEOUS

IC	411	IC	CA0008AM
IC	451	IC	PML004AF
IC	452	IC	PA2028A
IC	491	IC	NJM4558MD
IC	501	IC	S-81250PGPD
IC	551	IC	PAL005A
IC	601	IC	PE5005A
IC	631	IC	S-80734ANDYI
IC	651	IC	PML006A
IC	851	IC	TPD1018F
Q	411	Transistor	2SA1586
Q	412	Transistor	DTC124EK
Q	431	Transistor	HN1C03F
Q	432	Transistor	HN1C03F
Q	433	Transistor	HN1C03F
Q	434	Transistor	IMD2A
Q	451	Transistor	IMH3A
Q	452	Transistor	IMH3A
Q	453	Transistor	IMH3A
Q	501	Transistor	DTA124EK
Q	502	Transistor	2SC1740S
Q	551	Transistor	DTC144EK
Q	601	Transistor	DTA114EK
Q	641	Transistor	DTC114EK
Q	651	Transistor	2SA933S
Q	652	Transistor	2SB1236
Q	653	Transistor	DTC124EK
Q	655	FET	2SK2356Z
Q	656	Transistor	2SC3295
Q	657	Transistor	2SC2412K
Q	851	Transistor	2SA1037K
Q	852	Transistor	DTC124EK
Q	853	Transistor	2SC2412K
Q	854	Transistor	2SC2412K
Q	855	Transistor	2SC2412K
Q	951	Transistor	2SA1037K
Q	952	Transistor	2SC3673
Q	953	Transistor	IMX1
Q	954	Transistor	2SD2396
Q	955	Transistor	2SB1238
Q	956	Transistor	DTC114EK
Q	957	Chip Transistor	2SC2712
Q	958	Transistor	DTC114EK
Q	991	Transistor	2SD2396
Q	992	Transistor	IMD2A

=====Circuit Symbol and No.		===Part Name	Part No.
D	431	Diode	MA152WK
D	432	Diode	1SS133
D	491	Diode	DA204K
D	492	Diode	DA204K
D	501	Diode	MA3160(L)
D	551	Diode	1SR154-400
D	651	Diode	MTZ5R6J(C)
D	652	Diode	DA204K
D	653	Diode	DA204K
D	654	Diode	DA204K
D	656	Diode	U1JU44
D	657	LED	CL170PGCD(AB)
D	659	Diode	U1JU44
D	660	Diode	U1JU44
D	662	Diode	MA8082(M)
D	663	Diode	MA3062(M)
D	851	LED	BR4361F
D	852	Diode	ERA15-02VH
D	853	Diode	ERA15-02VH
D	951	Diode	ERA15-02VH
D	952	Diode	ERA15-02VH
D	955	Diode	MA152WK
D	956	Diode	HZS6L(B1)
D	957	Diode	HZS7L(C2)
D	958	Diode	HZS6L(C3)
D	959	Diode	HZS9L(A2)
D	960	Diode	HZS9L(B3)
D	961	Diode	ERA15-02VH
D	973	Diode	1SR154-400
D	992	Diode	HZS9L(B1)
L	411	Inductor	LAU3R3J
L	451	Ferri-Inductor	LAU101K
L	501	Ferri-Inductor	LAU4R7K
L	502	Inductor	CTF1399
L	503	Inductor	CTF1399
L	601	Inductor	LAU100K
L	602	Ferri-Inductor	LAU2R2K
L	603	Ferri-Inductor	LAU2R2K
L	604	Ferri-Inductor	LAU2R2K
L	651	Ferri-Inductor	LAU101K
L	652	Coil	CTH1228
L	653	Coil	CTH1228
L	655	Inductor	CTF1483
L	691	Inductor	CTF1399
L	692	Inductor	CTF1399
L	693	Inductor	CTF1399
L	951	Ferri-Inductor	LAU2R2K
TH	601	Thermistor	CCX1037
TH	651	Posistor	CCX1042
X	601	Radiator 12.58291MHz	CSS1402
		FM/AM Tuner Unit	CWE1501
BZ	601	Buzzer	CPV1050
AR	501		DSP-201M

RESISTORS

R	411		RS1/10S620J
R	412		RS1/10S101J
R	413		RS1/10S101J
R	414		RS1/10S222J
R	415		RS1/10S332J
R	416		RS1/10S682J
R	417		RS1/10S102J
R	418		RS1/10S102J
R	419		RS1/10S473J
R	420		RS1/10S103J

Circuit Symbol and No.	Part Name	Part No.
R 421		RS1/10S473J
R 423		RS1/10S821J
R 424		RS1/10S821J
R 425		RS1/10S223J
R 426		RS1/10S223J
R 427		RS1/10S102J
R 428		RS1/10S102J
R 431		RS1/10S820J
R 432		RS1/10S820J
R 433		RS1/10S820J
R 434		RS1/10S820J
R 435		RS1/10S820J
R 436		RS1/10S820J
R 437		RS1/10S223J
R 438		RS1/10S223J
R 439		RS1/10S223J
R 440		RS1/10S223J
R 441		RS1/10S223J
R 442		RS1/10S223J
R 443		RS1/10S102J
R 445		RS1/16S103J
R 446		RS1/16S103J
R 447		RS1/10S103J
R 448		RS1/16S103J
R 449		RS1/16S103J
R 450		RS1/16S103J
R 457		RS1/10S203J
R 459		RS1/10S102J
R 460		RS1/10S102J
R 461		RS1/10S102J
R 462		RS1/10S102J
R 463		RS1/10S102J
R 464		RS1/10S102J
R 465		RS1/10S473J
R 466		RS1/10S473J
R 467		RS1/10S473J
R 468		RS1/10S473J
R 469		RS1/10S473J
R 470		RS1/10S473J
R 491		RS1/10S102J
R 492		RS1/10S102J
R 493		RS1/10S333J
R 494		RS1/10S333J
R 495		RS1/10S104J
R 496		RS1/10S104J
R 497		RS1/10S104J
R 498		RS1/10S104J
R 501		RS1/16S0R0J
R 502		RS1/10S222J
R 503		RS1/10S222J
R 504		RS1/16S0R0J
R 505		RS1/16S0R0J
R 508		RS1/10S681J
R 509		RS1/10S473J
R 511		RS1/10S473J
R 512		RS1/10S681J
R 513		RS1/10S473J
R 514		RS1/10S681J
R 515		RS1/10S473J
R 516		RS1/10S681J
R 517		RS1/10S472J
R 518		RS1/10S103J
R 520		RS1/10S681J
R 521		RS1/8S151J
R 522		RS1/10S681J
R 523		RS1/10S473J
R 524		RS1/10S0R0J
R 525		RS1/10S0R0J
R 532		RS1/10S681J
R 533		RS1/10S473J
R 541		RS1/10S272J
R 542		RS1/10S272J
R 544		RS1/10S393J
R 545		RS1/10S162J
R 546		RS1/10S162J
R 547		RS1/10S0R0J
R 551		RS1/10S103J
R 552		RS1/10S103J
R 553		RS1/10S331J
R 581		RS1/16S331J
R 582		RS1/16S331J
R 583		RS1/16S331J
R 584		RS1/16S331J
R 585		RS1/16S331J
R 586		RS1/16S331J
R 603		RS1/10S473J
R 604		RS1/10S102J
R 606		RS1/10S473J
R 607		RA3C102J
R 610		RS1/10S222J
R 611		RN1/10SE2202D
R 613		RS1/10S473J
R 614		RS1/10S222J
R 615		RS1/10S222J
R 616		RS1/10S473J
R 617		RS1/10S473J
R 618		RS1/10S473J
R 620		RS1/10S473J
R 621		RS1/10S473J
R 622		RS1/10S102J
R 623		RS1/10S202J
R 624		RS1/10S102J
R 625		RS1/10S102J
R 626		RS1/10S822J
R 633		RS1/8S473J
R 634		RS1/10S0R0J
R 637		RS1/16S101J
R 651		RS1/10S222J
R 652		RS1/10S472J
R 653		RS1/10S222J
R 654		RS1/8S222J
R 655		RS1/8S222J
R 656		RS1/8S222J
R 657		RS1/10S473J
R 658		RS1/10S472J
R 659		RS1/8S472J
R 660		RD1/4PU102J
R 661		RS1/10S1R0J
R 662		RD1/2PM390J
R 663		RD1/2PM390J
R 664		RS1/16S473J
R 667		RS1/10S103J
R 668		RS1/10S472J
R 669		RS1/16S912J
R 670		RS1/10S103J
R 671		RS1/10S472J
R 672		RS1/8S151J
R 673		RS1/8S225J
R 674		RS1/8S225J
R 675		RS1/16S473J

Circuit Symbol and No.	Part Name	Part No.
R 676		RS1/8S474J
R 677		RS1/8S474J
R 678		RS1/8S105J
R 679		RD1/2PM182J
R 680		RD1/2PM182J
R 681		RS1/10S681J
R 682		RA3C102J
R 685		RS1/10S152J
R 686		RS1/16S622J
R 687		RS1/8S151J
R 688		RS1/16S912J
R 690		RS1/8S151J
R 691		RS1/10S102J
R 692		RS1/8S391J
R 693		RS1/8S391J
R 694		RS1/16S473J
R 851		RS1/10S223J
R 852		RS1/16S223J
R 853		RS1/10S103J
R 854		RS1/10S272J
R 855		RS1/10S223J
R 856		RS1/10S473J
R 857		RS1/16S473J
R 858		RS1/16S473J
R 859		RS1/8S471J
R 860		RS1/10S223J
R 861		RS1/10S272J
R 862		RS1/10S223J
R 863		RS1/10S272J
R 864		RS1/10S103J
R 865		RS1/8S102J
R 866		RS1/8S102J
R 867		RS1/16S103J
R 868		RD1/4PU102J
R 870		RS1/10S102J
R 881		RS1/10S103J
R 882		RS1/10S102J
R 951		RD1/4PU102J
R 952		RS1/10S153J
R 953		RS1/16S472J
R 954		RS1/16S472J
R 955		RS1/10S102J
R 956		RD1/4PU102J
R 957		RS1/10S101J
R 958		RS1/10S622J
R 959		RS1/10S473J
R 960		RS1/16S473J
R 961		RS1/10S103J
R 962		RS1/10S473J
R 963		RS1/10S472J
R 964		RS1/10S103J
R 965		RS1/10S473J
R 966		RS1/10S473J
R 967		RS1/10S102J
R 968		RS1/10S102J
R 969		RD1/4PU221J
R 970		RS1/10S1R0J
R 971		RS1/10S473J
R 972		RS1/16S103J
R 973		RS1/16S473J
R 974		RS1/10S103J
R 975		RS1/16S473J
R 991		RD1/4PU221J
R 992		RD1/4PU221J
R 993		RS1/10S472J
R 994		RS1/10S222J

Circuit Symbol and No.	Part Name	Part No.
CAPACITORS		
C 411		CKSQYB104K25
C 412		CKSQYB473K25
C 413		CKSYB105K16
C 414		CKSYB105K16
C 415		CKSYB105K16
C 416		CKSYB105K16
C 431		CEJA100M16
C 432		CEJA100M16
C 433		CEJA100M16
C 434		CEJA100M16
C 435		CEJA100M16
C 436		CEJA100M16
C 443		CEJA220M16
C 445		CKLSRB222K50
C 446		CKLSRB222K50
C 447		CKLSRB222K50
C 448		CKLSRB222K50
C 449		CKLSRB222K50
C 450		CKLSRB222K50
C 451		CKSYB224K25
C 452		CKSYB224K25
C 453		CKSYB105K16
C 454		CKSYB105K16
C 455		CEJANP4R7M16
C 456		CEJANP4R7M16
C 457		CEJANP4R7M16
C 458		CEJANP4R7M16
C 459		CKSQYB473K25
C 460		CKSQYB473K25
C 461		CKSQYB473K25
C 462		CKSQYB473K25
C 463		CEJA470M10
C 464		CKSQYB104K25
C 465		CEJA100M16
C 466		CKSQYB153K50
C 467		CKSQYB473K25
C 468		CKSQYB123K50
C 469		CKSQYB333K50
C 470		CKSQYB153K50
C 471		CEJA100M16
C 472		CKSQYB471K50
C 473		CEJA100M16
C 474		CEJA100M16
C 475		CEJA100M16
C 476		CEAL330M25
C 477		CKSYB105K16
C 478		CKSYB105K16
C 479		CKSYB105K16
C 480		CKSYB105K16
C 481		CKSYB105K16
C 482		CKSYB105K16
C 483		CEAL330M25
C 484		CASAQ4R7M16
C 485		CEAL4R7M35
C 486		CEAL4R7M35
C 487		CEAL4R7M35
C 488		CEAL4R7M35
C 489		CEAL4R7M35
C 490		CEAL4R7M35
C 491		CKLSQB152K50
C 492		CKLSQB152K50
C 493		CKSQYB104K25
C 494		CKSQYB104K25
C 495		CKSQYB104K25
C 496		CKSQYB104K25

=====Circuit Symbol and No.		===Part Name	Part No.
C	497		CKSQYB104K25
C	498		CKSQYB104K25
C	499		CKSQYB103K25
C	500		CKSQYB104K25
C	501		CKSQYB103K25
C	502		CKSQYB223K50
C	503		CKSQYB223K50
C	504		CASAQ150K16
C	505		CKSQYB102K50
C	506		CEAL101M6R3
C	507		CKSQYB473K25
C	521		CKSRYB102K50
C	533		CKSQYB183K50
C	534		CKSQYB183K50
C	535		CKSQYB472K50
C	536		CCSQCH101J50
C	551		CKSYB224K25
C	552		CKSYB224K25
C	553		CKSYB224K25
C	554		CKSYB224K25
C	555		CEJA330M10
C	557		CKSYB105K16
C	558	10µF/16V	CCH1219
C	559		CKSYB104K50
C	560	3300µF/16V	CCH1330
C	561		CKSQYB473K25
C	601		CCSQCH200J50
C	602		CCSQCH200J50
C	603		CKSYB105K16
C	604		CEAL4R7M35
C	605		CCSQCH101J50
C	607		CCSQCH101J50
C	608		CCSQCH101J50
C	609		CCSQCH101J50
C	610		CCSQCH101J50
C	611		CCSQCH101J50
C	612		CEAL2R2M50
C	651		CCSQCH101J50
C	652		CEAL4R7M35
C	653		CKSRYB222K50
C	655	2.2µF/25V	CCH1327
C	656	2.2µF/25V	CCH1327
C	657	0.1µF	CCG1096
C	658	4.7µF	CCG1089
C	659		CEJA470M16
C	660		CKSQYB102K50
C	662	150pF	CCG1095
C	670		CKSQYB473K25
C	851		CKSQYB473K25
C	881		CKSQYB473K25
C	951	470µF/16V	CCH1325
C	952		CKSQYB473K25
C	953		CEJA101M10
C	954		CKSQYB473K25
C	955		CEJA101M16
C	956		CKSQYB103K25
C	957	330µF/16V	CCH1326
C	958		CKSQYB102K50
C	959		CKSQYB105K16
C	989	470µF/16V	CCH1183
C	991		CKSQYB473K25
C	992		CKSQYB102K50
C	993		CEJA101M10

B Unit Number : CWE1501
Unit Name : FM/AM Tuner Unit

=====Circuit Symbol and No.		===Part Name	Part No.
MISCELLANEOUS			
IC	1	IC	PML002A
IC	2	IC	PM4008A
IC	3	IC	BR9010FV
Q	1	Transistor	2SC4081
Q	2	Transistor	DTC124EU
Q	3	FET	3SK263
Q	51	Transistor	2SC4081
Q	201	FET	2SK932
Q	202	Transistor	DTC124EU
Q	204	Transistor	2SC4081
D	1	Diode	KV1410(23)
D	2	Diode	1SV248
D	6	Diode	KV1410(23)
D	201	Diode	MA143
D	202	Diode	MA147
D	903	Diode	KV1410(23)
D	904	Diode	SVC253
L	1	Coil	CTC1155
L	3	Inductor	LCTB1R5K2125
L	4	Coil	CTC1155
L	201	Inductor	LCTB330K1608
L	202	Inductor	CTF1287
L	203	Inductor	LCTA121J3225
L	901	Coil	CTC1154
L	902	Inductor	LCTA3R3J3225
L	904	Inductor	LCTBR47K1608
L	905	Inductor	LCTBR47K1608
T	51	Coil	CTE1132
CF	51	Ceramic Filter	CTF1442
CF	52	Ceramic Filter	CTF1442
CF	53	Ceramic Filter	CTF1442
CF	202	Ceramic Filter	CTF1476
X	901	Crystal Resonator 10.250MHz	CSS1432
RESISTORS			
R	1		RS1/16S183J
R	2		RS1/16S103J
R	5		RS1/16S0R0J
R	7		RS1/16S273J
R	8		RS1/16S473J
R	9		RS1/16S223J
R	10		RS1/16S473J
R	11		RS1/16S221J
R	12		RS1/16S103J
R	13		RS1/16S104J
R	16		RS1/16S223J
R	17		RS1/16S221J
R	18		RS1/16S221J
R	19		RS1/16S473J
R	20		RS1/16S470J
R	31		RS1/16S0R0J
R	51		RS1/16S470J
R	52		RS1/16S103J
R	53		RS1/16S103J
R	54		RS1/16S331J
R	55		RS1/16S331J
R	56		RS1/16S560J
R	57		RS1/16S560J
R	58		RS1/16S102J
R	59		RS1/16S225J
R	60		RS1/16S133J
R	61		RS1/16S433J
R	101		RS1/16S333J
R	102		RS1/16S103J
R	103		RS1/16S333J

=====Circuit Symbol and No.		===Part Name	Part No.
R	104		RS1/16S562J
R	106		RS1/16S0R0J
R	108		RS1/16S0R0J
R	110		RS1/16S154J
R	111		RS1/16S273J
R	113		RS1/16S222J
R	114		RS1/16S333J
R	115		RS1/16S334J
R	116		RS1/16S473J
R	202		RS1/16S472J
R	203		RS1/16S225J
R	204		RS1/16S102J
R	205		RS1/16S220J
R	206		RS1/16S471J
R	208		RS1/16S104J
R	209		RS1/16S104J
R	210		RS1/16S563J
R	213		RS1/16S223J
R	902		RS1/16S103J
R	904		RS1/16S473J
R	907		RS1/16S103J
R	908		RS1/16S681J
R	909		RS1/16S473J
R	914		RS1/16S562J
CAPACITORS			
C	1		CCSQCH4R0C50
C	6		CKSQYB105K10
C	8		CKSRYB222K50
C	10		CCSRCH220J50
C	11		CCSRCH150J50
C	12		CCSRCH8R0D50
C	14		CCSRCJ3R0C50
C	15		CKSRYB103K50
C	16		CKSRYB222K50
C	17		CKSRYB222K50
C	18		CCSRCJ3R0C50
C	19		CKSRYB103K50
C	20		CKSRYB103K50
C	21		CKSRYB103K50
C	24		CKSQYB334K16
C	26		CKSRYB472K50
C	30		CCSRCH220J50
C	32		CCSRCH470J50
C	35		CKSRYB103K50
C	51		CKSRYB103K50
C	52		CKSRYB473K16
C	53		CCSRCK2R0C50
C	54		CKSRYB103K50
C	55		CKSRYB104K16
C	56		CKSRYB104K16
C	58		CKSQYB224K16
C	101		CEALNP100M10
C	102		CCSRCH151J50
C	103		CKSRYB473K16
C	105		CKSRYB682K25
C	106		CEALR68M50
C	107		CKSRYB103K50
C	108		CKSQYB474K16
C	109		CKSQYB474K16
C	110		CKSRYB104K16
C	111		CKSRYB104K16
C	112		CKSRYB104K16
C	113		CKSRYB123K25
C	114		CEAL220M6R3
C	115		CKSRYB473K16

=====Circuit Symbol and No.		===Part Name	Part No.
C	116		CEAL2R2M50
C	117		CKSRYB102K50
C	120		CKSRYB183K25
C	121		CKSRYB332K50
C	122		CKSRYB562K25
C	123		CKSRYB681K50
C	125		CKSRYB103K50
C	126		CKSRYB103K50
C	127		CEAL2R2M50
C	128		CKSRYB103K50
C	201		CCSRCH471J50
C	202		CCSRCH100D50
C	203		CKSRYB104K16
C	204		CKSRYB332K50
C	205		CKSRYB103K50
C	206		CKSRYB104K16
C	207		CKSRYB473K16
C	208		CCSRCH560J50
C	209		CEAL470M6R3
C	210		CKSRYB103K50
C	211		CKSRYB103K50
C	212		CCSRCH101J50
C	215		CKSRYB223K25
C	216		CKSQYB334K16
C	217		CKSRYB103K50
C	219		CKSQYB105K10
C	220		CKSRYB104K16
C	221		CKSRYB473K16
C	222		CKSQYB334K16
C	223		CKSQYB474K16
C	224		CKSRYB104K16
C	225		CKSRYB272K50
C	226		CKSRYB682K25
C	902		CCSRCH270J50
C	904		CKSRYB223K25
C	905		CKSRYB103K50
C	906		CCSRTH100D50
C	907		CCSRTH150J50
C	909		CCSRTH100D50
C	910		CKSRYB332K50
C	912		CKSQYB474K16
C	913		CKSRYB223K25
C	914		CKSRYB682K25
C	915		CKSQYB223K25
C	916		CKSQYB474K16
C	917		CKSYB475K10
C	918		CKSRYB223K25
C	919		CKSQYB225K10
C	920		CCSRCH270J50
C	921		CCSRCH270J50
C	922		CKSYB105K16
C	923		CKSRYB103K50

C Unit Number : CWM6196
Unit Name : Keyboard Unit(DEH-P700R/UC, DEH-P7000R/UC)

MISCELLANEOUS

IC	901	IC	PD6279A
IC	902		RS-140
D	901	Diode	DAN202K
D	902	Diode	DAP202K
D	903	LED	CL170SBX
D	904	LED	CL170PGCD(AB)
L	901	Inductor	LCTA101J3225
X	901	Radiator 5.00MHz	CSS1423
S	901	Switch	CSG1107
S	902	Switch	CSG1112

=====Circuit Symbol and No.	===	Part Name	Part No.
S	903	Switch	CSG1111
S	904	Switch	CSG1112
S	905	Switch	CSG1112
S	907	Switch	CSG1112
S	908	Switch	CSG1112
S	909	Switch	CSG1112
S	910	Switch	CSG1112
S	911	Switch	CSG1112
S	913	Switch	CSG1107
S	914	Switch	CSG1111
S	915	Switch	CSG1112
S	916	Switch	CSG1112
S	917	Switch	CSG1112
S	919	Switch	CSG1107
S	920	Switch	CSG1112
S	921	Switch	CSG1112
S	922	Switch	CSG1107
S	995	Switch	CSG1112
S	996	Switch	CSG1112
S	997	Switch	CSG1112
S	998	Switch	CSG1112
		LCD	CAW1519
		EL	CEL1592

RESISTORS

R	901		RS1/10S222J
R	902		RS1/10S222J
R	903		RS1/10S472J
R	904		RS1/10S121J
R	905		RS1/10S2R2J
R	906		RS1/10S470J
R	907		RS1/10S470J
R	909		RS1/8S561J
R	910		RS1/8S561J
R	911		RS1/8S561J
R	912		RS1/8S561J
R	913		RS1/8S561J
R	914		RS1/8S561J
R	915		RS1/8S751J
R	916		RS1/8S751J
R	917		RS1/8S561J
R	918		RS1/8S561J
R	919		RS1/8S561J
R	920		RS1/8S561J
R	921		RS1/8S561J
R	922		RS1/8S561J
R	923		RS1/8S621J
R	929		RS1/8S0R0J
R	930		RS1/8S152J
R	931		RS1/8S152J
R	932		RS1/8S102J
R	933		RS1/8S102J

CAPACITORS

C	901		CSZSR100M16
C	902		CKSQYB104K50
C	903		CSZSR100M16
C	904		CKSQYB103K50
C	905		CKSQYB103K50
C	906		CKSQYB103K50
C	907		CKSQYB104K50

=====Circuit Symbol and No.	===	Part Name	Part No.

C Unit Number : CWM6197
Unit Name : Keyboard Unit(DEH-P7050/ES)

MISCELLANEOUS

IC	901	IC	PD6279A
IC	902		RS-140
D	901	Diode	DAN202K
D	902	Diode	DAP202K
D	903	LED	CL170SBX
D	904	LED	CL170PGCD(AB)
L	901	Inductor	LCTA101J3225
X	901	Radiator 5.00MHz	CSS1423
S	901	Switch	CSG1107
S	902	Switch	CSG1112
S	903	Switch	CSG1111
S	904	Switch	CSG1112
S	905	Switch	CSG1112
S	907	Switch	CSG1112
S	908	Switch	CSG1112
S	909	Switch	CSG1112
S	910	Switch	CSG1112
S	911	Switch	CSG1112
S	913	Switch	CSG1107
S	914	Switch	CSG1111
S	915	Switch	CSG1112
S	916	Switch	CSG1112
S	917	Switch	CSG1112
S	919	Switch	CSG1107
S	920	Switch	CSG1112
S	921	Switch	CSG1112
S	922	Switch	CSG1107
S	995	Switch	CSG1112
S	996	Switch	CSG1112
S	997	Switch	CSG1112
S	998	Switch	CSG1112
		LCD	CAW1518
		EL	CEL1592

RESISTORS

R	901		RS1/10S222J
R	902		RS1/10S222J
R	903		RS1/10S472J
R	904		RS1/10S121J
R	905		RS1/10S2R2J
R	906		RS1/10S470J
R	907		RS1/10S470J
R	909		RS1/8S561J
R	910		RS1/8S561J
R	911		RS1/8S561J
R	912		RS1/8S561J
R	913		RS1/8S561J
R	914		RS1/8S561J
R	915		RS1/8S751J
R	916		RS1/8S751J
R	917		RS1/8S561J
R	918		RS1/8S561J
R	919		RS1/8S561J
R	920		RS1/8S561J
R	921		RS1/8S561J
R	922		RS1/8S561J
R	923		RS1/8S621J
R	929		RS1/8S0R0J
R	930		RS1/8S152J
R	931		RS1/8S152J
R	932		RS1/8S102J
R	933		RS1/8S102J

=====Circuit Symbol and No.		===Part Name	Part No.
CAPACITORS			
C	901		CSZSR100M16
C	902		CKSQYB104K50
C	903		CSZSR100M16
C	904		CKSQYB103K50
C	905		CKSQYB103K50
C	906		CKSQYB103K50
C	907		CKSQYB104K50

D Unit Number : CWX2235
Unit Name : Compound Unit

MISCELLANEOUS			
IC	201	IC	UPD63710GC
IC	301	IC	BA5985FM
IC	601	IC	TA2063F
IC	701	IC	BA05SFP
Q	101	Transistor	2SB1132
D	801	LED	CL200IRX
D	802	LED	CL200IRX
X	201	Ceramic Oscillator 16.934MHz	CSS1456
S	801	Spring Switch(HOME)	CSN1051
S	802	Spring Switch(CLAMP)	CSN1052

RESISTORS			
R	101		RS1/8S120J
R	102		RS1/8S100J
R	103		RS1/16S222J
R	201		RS1/16S104J
R	205		RS1/16S103J
R	206		RS1/16S393J
R	207		RS1/16S182J
R	208		RS1/16S304J
R	210		RS1/16S0R0J
R	212		RS1/16S103J
R	213		RS1/16S103J
R	214		RS1/16S123J
R	215		RS1/16S273J
R	216		RS1/16S273J
R	309		RS1/16S473J
R	310		RS1/16S473J
R	503		RA4C681J
R	504		RS1/16S102J
R	601		RS1/16S102J
R	602		RS1/16S102J
R	603		RS1/16S223J
R	604		RS1/16S223J
R	801		RS1/8S751J
R	802		RS1/8S751J

CAPACITORS			
C	101		CCSRCH102J25
C	102		CKSQYB104K16
C	103		CEV101M6R3
C	104		CEV470M6R3
C	105		CKSQYB334K16
C	106		CKSQYB334K16
C	107		CKSQYB334K16
C	201		CKSQYB104K16
C	202		CEV101M6R3
C	203		CKSQYB104K16
C	204		CKSRYB332K50
C	205		CKSQYB104K16
C	206		CKSRYB392K50
C	207		CKSQYB224K16
C	208		CCSRCH270J50

=====Circuit Symbol and No.		===Part Name	Part No.
C	209		CCSRCJ3R0C50
C	210		CCSRCH221J50
C	211		CCSRCH101J50
C	212		CKSQYB682K50
C	213		CKSQYB104K16
C	214		CKSQYB104K16
C	215		CKSQYB104K16
C	216		CKSQYB104K16
C	217		CKSQYB104K16
C	218		CKSQYB104K16
C	219		CKSQYB104K16
C	220		CKSQYB104K16
C	301		CEV470M16
C	502		CKSRYB471K50
C	601		CEV4R7M35
C	602		CEV4R7M35
C	603		CCSQSL152J50
C	604		CCSQSL152J50
C	605		CEV220M6R3
C	701		CEV101M6R3
C	702	10µF/6.3V	CCH1338
C	703		CKSQYB334K16

E Unit Number :
Unit Name : Photo Unit

Q	1	Photo-transistor	CPT230SX-TU
Q	2	Photo-transistor	CPT230SX-TU

Miscellaneous Parts List

		Pickup Unit(Service)(P8)	CXX1285
M	1	Motor Unit(CARRIAGE)	CXB2190
M	2	Motor Unit(LOADING)	CXB2195
M	3	Motor Unit(SPINDLE)	CXB2562
S	651	Switch(CLOSE)	CSN1027

6. ADJUSTMENT

6.1 CD ADJUSTMENT

1) Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO(approx. 2.5V) instead of GND.
  If REFO and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.
  Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.
  Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.
  If by accident REFO comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.

- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.

- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.

- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit.Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.
  *During PLAY, even if the eject button is pressed,the disc will not be ejected and the unit will remain in the PLAY mode.
  *The unit will not load a disc.
  When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.

2) Test Mode

This mode is used for adjusting the CD mechanism module of the device.

- Test mode starting procedure
  Reset while pressing the **4** and **6** keys together.

- Test mode cancellation
  Switch ACC, back-up OFF.

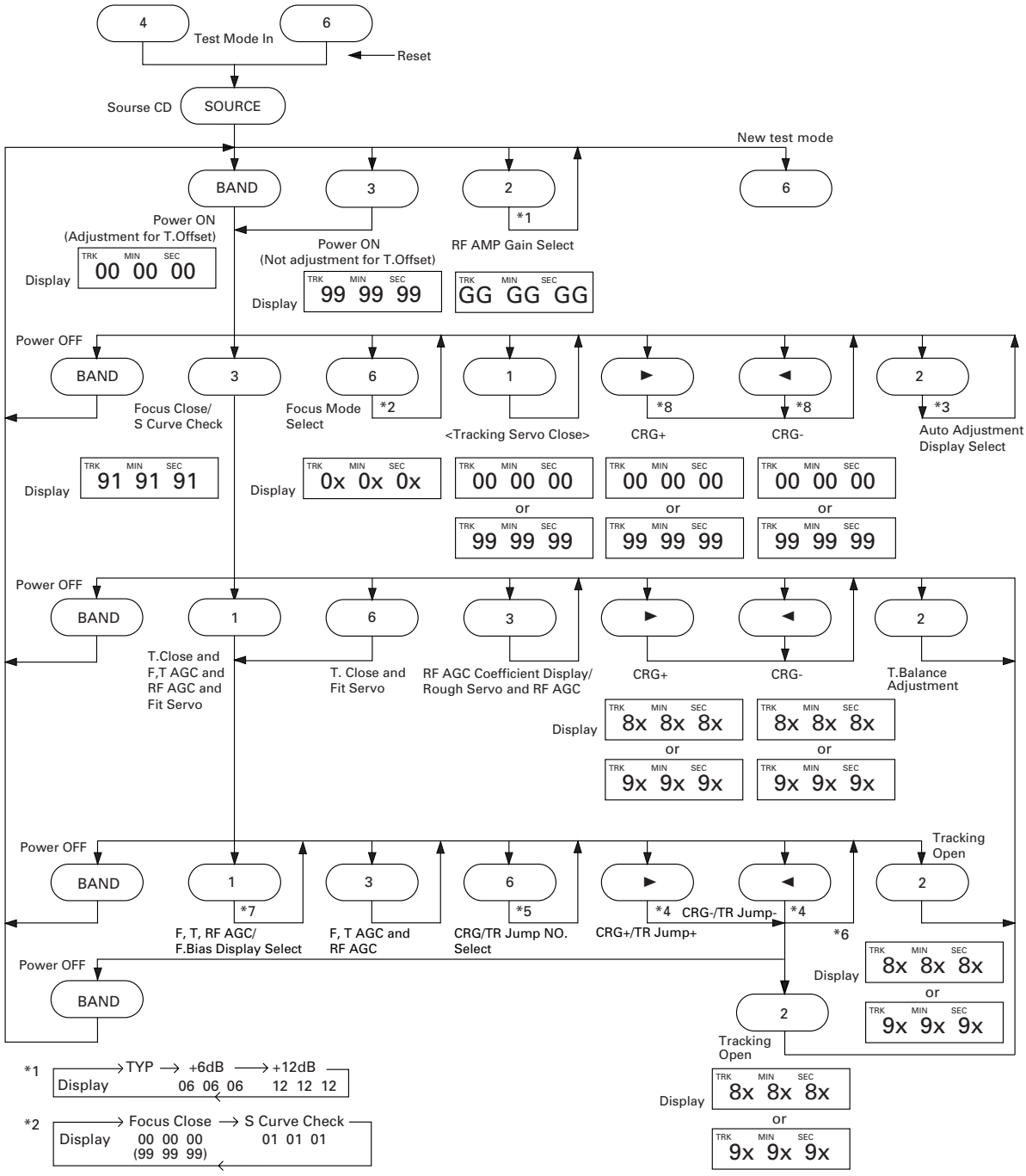
- After pressing the EJECT key, do not press any other key until the disk is completely ejected.

- If the ► or ◄ key is pressed while focus search is in progress, immediately turn the power off (otherwise the actuator may be damaged due to adhesion of the lenses).

- Jump operation of TRs other than 100TR continues after releasing the key. CRG move and 100TR jump operations are brought into the “Tracking close” status when the key is released.

- Powering Off/On resets the jump mode to “Single TR (91)”, the RF AMP gain setting to 0 dB, and the automatic adjustment value to the initial value.

● Flow Chart


4
6
Test Mode In
Reset
Sourse CD
SOURCE
New test mode
BAND
3
2
6
*1
Power ON
(Adjustment for T.Offset)
Display
TRK MIN SEC
00 00 00
Power ON
(Not adjustment for T.Offset)
RF AMP Gain Select
Display
99 99 99
GG GG GG
Power OFF
BAND
3
6
1
►
◄
2
Focus Close/
S Curve Check
Focus Mode
Select
*2
*8
*8
*3
<Tracking Servo Close>
CRG+
CRG-
Auto Adjustment
Display Select
Display
91 91 91
0x 0x 0x
00 00 00
or
99 99 99
Power OFF
BAND
1
6
3
►
◄
2
T.Close and
F,T AGC and
RF AGC and
Fit Servo
T. Close and
Fit Servo
RF AGC Coefficient Display/
Rough Servo and RF AGC
CRG+
CRG-
T.Balance
Adjustment
Display
8x 8x 8x
9x 9x 9x
Power OFF
Tracking
Open
BAND
1
3
6
►
◄
2
*7
*5
*4
CRG-/TR Jump-
*4
*6
F, T, RF AGC/
F.Bias Display Select
F, T AGC and
RF AGC
CRG/TR Jump NO.
Select
CRG+/TR Jump+
Power OFF
BAND
2
Tracking
Open
Display
8x 8x 8x
9x 9x 9x
*1 → TYP → +6dB → +12dB
Display 06 06 06 12 12 12
*2 → Focus Close → S Curve Check
Display 00 00 00 (99 99 99) 01 01 01
*3 → F.Offset Display → RF.Offset Display → F.Cansel Display
F.Cancel Value = {Top Rank 8bit of Set Value (7F [H] to 80 [H]) + 128} / 4
= 63 [D] to (32 [D]) to 00 [D]
*4 Single TR/32TR/100TR
*5 → Single TR → 32TRK → 100TRK → CRG Move
Display 9x(8x):91(81) 92(82) 93(83) 94(84)
*6 CRG Move, 100TR Jump Only
*7 → TRK, MIN, SEC → F.AGC Gain → T.AGC Gain → RF AGC Gain
(F,T.AGC Gain = (Present Value/Initial Value) ¥ 20)
*8 Voltage of CRG Motor = 2 [V]

6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

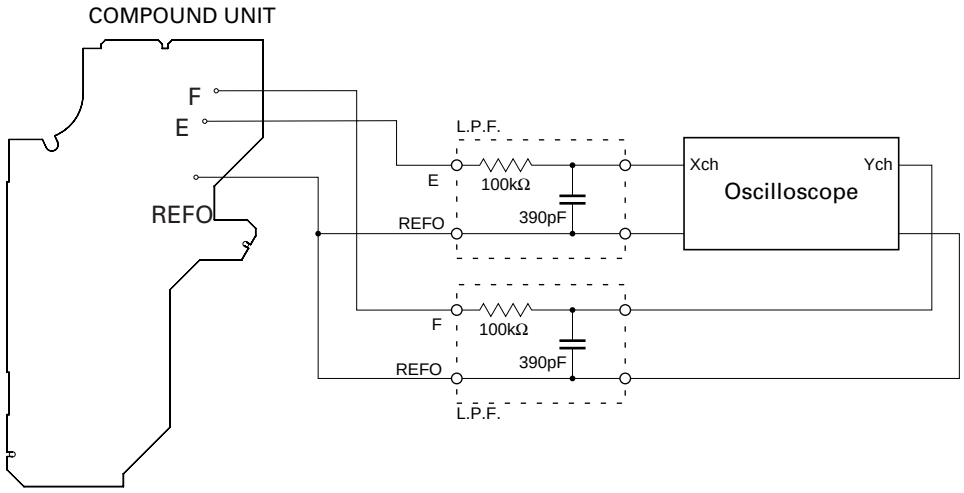
• **Note :**
The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

• **Purpose :**
To check that the grating is within an acceptable range when the PU unit is changed.

• **Symptoms of Mal-adjustment :**
If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• **Method :**

• Measuring Equipment	• Oscilloscope, Two L.P.F.
• Measuring Points	• E, F, REFO
• Disc	• ABEX TCD-784
• Mode	• TEST MODE



• **Checking Procedure**
1. In test mode, load the disc and switch the 5V regulator on.
2. Using the ► and ◄ buttons, move the PU unit to the innermost track.
3. Press key **3** to close focus, the display should read "91". Press key **2** to implement the tracking balance adjustment the display should now read "81". Press key **3** 2 times. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

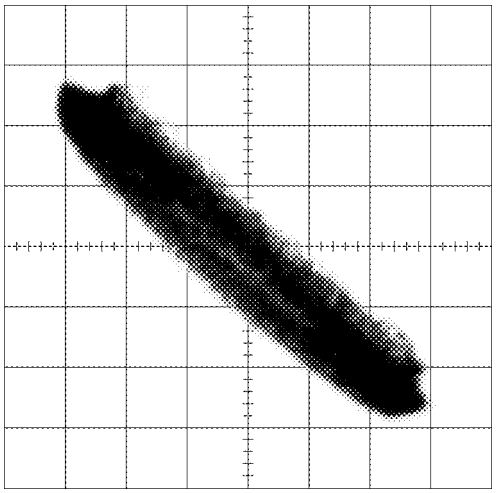
• **Note**
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• **Hint**
Reloading the disc changes the clamp position and may decrease the "wobble".

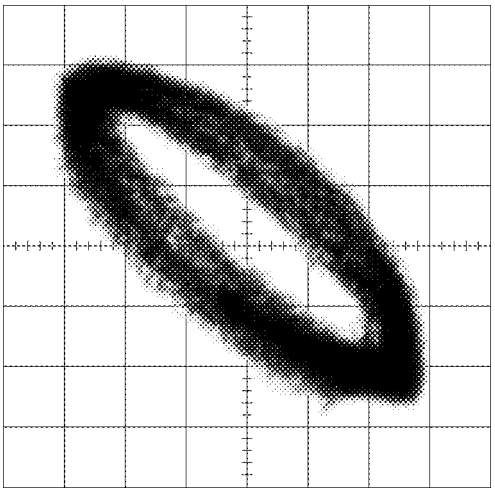
Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC

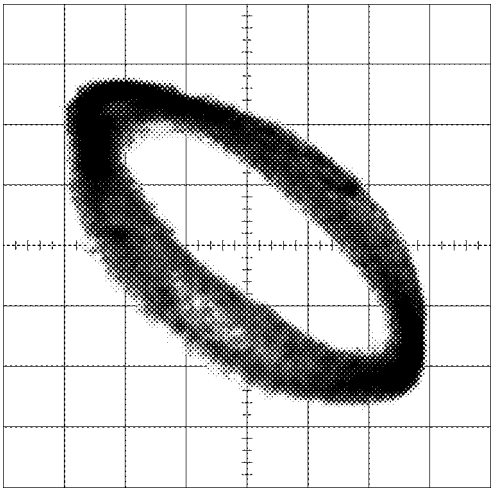
0°



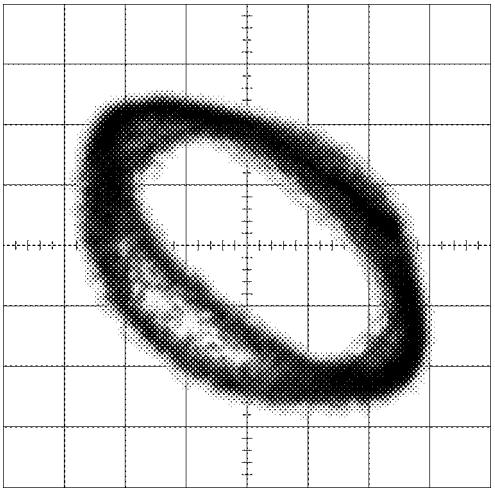
30°



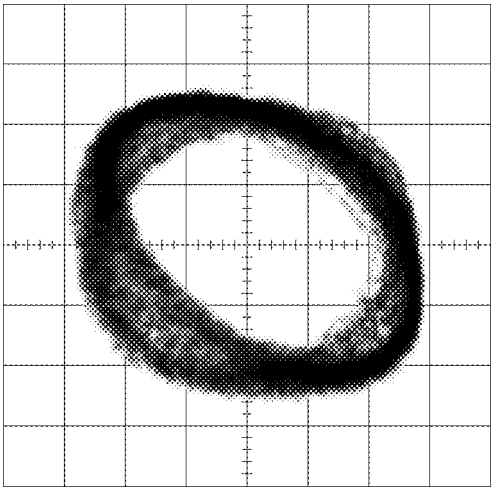
45°



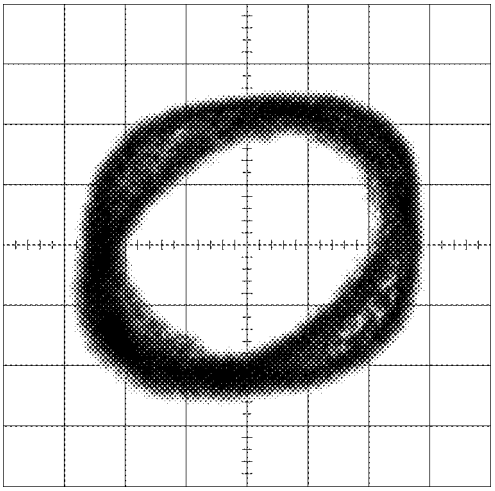
60°



75°



90°



7. GENERAL INFORMATION

7.1 PARTS

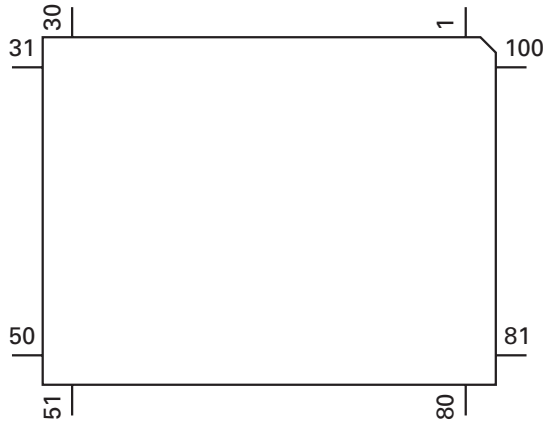
7.1.1 IC

● **Pin Functions (PE5004B)**

Pin No.	Pin Name	I/O	Function and Operation
1	$\overline{\text{SWVDD}}$	O	Key board unit power supply control output
2	$\overline{\text{DSENS}}$	I	Grille detach sense input
3,4	NC		Not used
5	TESTIN	I	Test program mode input
6	$\overline{\text{DRST}}$	O	RDS decoder reset output
7	TELIN	I	Telephone mute input
8	NC		Not used
9	RECIVE	O	During RDS data reception output
10	NC		Not used
11	$\overline{\text{RESET}}$	I	Reset input
12	XT2		Not used (open)
13	XT1		Connect to GND
14	VSS		GND
15	X2		Crystal oscillator connection pin
16	X1		Crystal oscillator connection pin
17	REGOFF		Connect to VSS
18	REGC		Capacitor for regulator connect pin
19	VDD		Power supply
20	ILMPW	O	Illumination power supply control output
21	SYSPW	O	System power control output
22	ADPW	O	A/D converter power
23	LCDPW	O	LCD back light power supply control output
24	IPPW	O	Power supply control output for IP BUS interface IC
25	ASENBO	O	Slave power supply control output
26	ROMDATA	O	ROM correction data output
27	ROMCLK	O	ROM correction clock output
28	MUTE	O	System mute output
29	$\overline{\text{FM}}$/AM	O	RDS decoder power supply control output
30	LOCL	O	Local L output
31	LOCH	O	Local H output
32	PCE2	O	EEPROM chip enable output
33	VCK	O	Clock output for electronic volume
34	VST	O	Strobe pulse output for electronic volume
35	VDT	O	Data output for electronic volume
36	NC		Not used
37	ROMCS	O	ROM correction chip select output
38	SD	I	Station detector input
39	$\overline{\text{ST}}$	I	FM stereo input
40	VSS		GND
41	VDD		Power supply
42	DIM	O	DIMMER select output
43	$\overline{\text{CSENS}}$	I	Flap close sense input
44	$\overline{\text{RDSLK}}$	I	RDS LK signal input
45	$\overline{\text{CURRQ}}$	O	Tuner voltage FIX output
46	RDT	I	RDS demodulation data input
47	DRELAY	O	External relay control output
48	DRSENS	I	Door open/close sense input
49	DRSYS	O	Door system select output
50	$\overline{\text{DLED}}$	O	Alarm LED output
51	DLSENS	I	Door lock sense input
52	STCUT	O	Starter cut output
53	$\overline{\text{MOSENS}}$	I	Motion/window damage sensor input
54	CD5VON	O	CD +5V power supply control output

Pin No.	Pin Name	I/O	Function and Operation
55	CONT	O	CD servo driver power supply control
56	VDCONT	O	CD VD power control output
57	CDMUTE	O	CD mute control output
58	CDEJET	O	CD load motor eject control output
59	CDLOAD	O	CD LOAD motor loading control output
60	LOCK	I	CD spindle lock detector input
61	FOK	I	CD focus OK signal input
62	PCL	O	Clock adjustment output
63	MIRR	I	CD mirror detection input
64	$\overline{\text{CLAMP}}$	I	CD disc clamp input
65	$\overline{\text{XSCK}}$	O	CD clock output
66	XSI	I	CD LSI data input
67	XSO	O	CD LSI data output
68	XA0	O	CD LSI command / data control output
69	$\overline{\text{XRST}}$	O	CD LSI reset output
70	$\overline{\text{XSTB}}$	O	CD LSI strobe output
71,72	NC		Not used
73	TEST	I	Test input terminal
74	SL	I	Signal level input from tuner
75	LLEVEL	I	Level indicator L channel input
76	MODEL1	I	Model select input
77	RLEVEL	I	Level indicator R channel input
78	EJTSNS	I	CD disc EJECT position detect
79	DSCSNS	I	CD disc insert sense input
80	VDSENS	I	VD voltage sense input
81	TEMP	I	Temperature sense input (CD)
82	VDD		A/D converter power supply terminal
83	VDD		A/D converter reference voltage terminal
84	GND		GND
85	RX	I	IP BUS data input
86	TX	O	IP BUS data output
87	GND		GND
88	$\overline{\text{LDET}}$	I	PLL lock sense input
89	RCK	I	RDS demodulation clock input
90	RDS57K	I	RDS 57kHzBP-OUT sense input
91	$\overline{\text{ISENS}}$	I	Illumination sense input
92	$\overline{\text{ASENS}}$	I	ACC power sense input
93	$\overline{\text{BSENS}}$	I	Back up power sense input
94	TUNPDI	I	PLL IC data input
95	KYDT	I	Key data input
96	DPDT	O	Display data output
97	TUNPCK	O	PLL IC clock output
98	TUNPDO	O	PLL IC data output
99	TUNPCE	O	PLL IC chip enable output
100	PEE	O	Beep tone output

*PE5004B



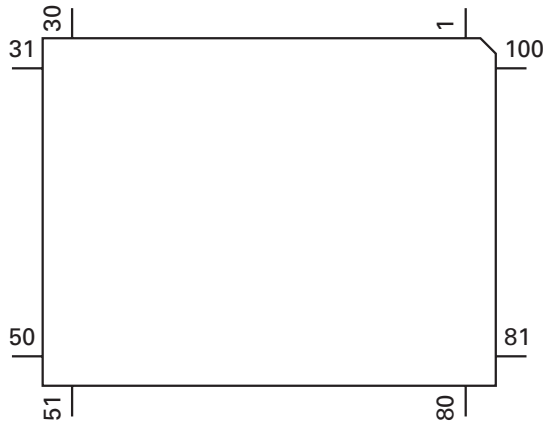
IC's marked by* are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

● **Pin Functions (PE5005A)**

Pin No.	Pin Name	I/O	Function and Operation
1	$\overline{\text{SWVDD}}$	O	Key board unit power supply control output
2	$\overline{\text{DSENS}}$	I	Grille detach sense input
3,4	NC		Not used
5	TESTIN	I	Test program mode input
6	NC		Not used
7	TELIN	I	Telephone mute input
8-10	NC		Not used
11	$\overline{\text{RESET}}$	I	Reset input
12	XT2		Not used (open)
13	XT1		Connect to GND
14	VSS		GND
15	X2		Crystal oscillator connection pin
16	X1		Crystal oscillator connection pin
17	REGOFF		Connect to VSS
18	REGC		Capacitor for regulator connect pin
19	VDD		Power supply
20	ILMPW	O	Illumination power supply control output
21	SYSPW	O	System power control output
22	ADPW	O	A/D converter power
23	LCDPW	O	LCD back light power supply control output
24	IPPW	O	Power supply control output for IP BUS interface IC
25	ASENBO	O	Slave power supply control output
26	ROMDATA	O	ROM correction data output
27	ROMCLK	O	ROM correction clock output
28	MUTE	O	System mute output
29	$\overline{\text{FM}}$/AM	O	RDS decoder power supply control output
30	LOCL	O	Local L output
31	LOCH	O	Local H output
32	PCE2	O	EEPROM chip enable output
33	VCK	O	Clock output for electronic volume
34	VST	O	Strobe pulse output for electronic volume
35	VDT	O	Data output for electronic volume
36	NC		Not used
37	ROMCS	O	ROM correction chip select output
38	SD	I	Station detector input
39	$\overline{\text{ST}}$	I	FM stereo input
40	VSS		GND
41	VDD		Power supply
42	DIM	O	DIMMER select output
43	$\overline{\text{CSENS}}$	I	Flap close sense input
44	NC		Not used
45	$\overline{\text{CURRQ}}$	O	Tuner voltage FIX output
46	NC		Not used
47	DRELAY	O	External relay control output
48	DRSENS	I	Door open/close sense input
49	DRSYS	O	Door system select output
50	$\overline{\text{DLED}}$	O	Alarm LED output
51	DLSENS	I	Door lock sense input
52	NC		Not used
53	$\overline{\text{MOSENS}}$	I	Motion/window damage sensor input
54	CD5VON	O	CD +5V power supply control output
55	CONT	O	CD servo driver power supply control
56	VDCONT	O	CD VD power control output
57	CDMUTE	O	CD mute control output
58	CDEJET	O	CD load motor eject control output
59	CDLOAD	O	CD LOAD motor loading control output
60	LOCK	I	CD spindle lock detector input
61	FOK	I	CD focus OK signal input

Pin No.	Pin Name	I/O	Function and Operation
62	PCL	O	Clock adjustment output
63	MIRR	I	CD mirror detection input
64	$\overline{\text{CLAMP}}$	I	CD disc clamp input
65	$\overline{\text{XSCK}}$	O	CD clock output
66	XSI	I	CD LSI data input
67	XSO	O	CD LSI data output
68	XA0	O	CD LSI command / data control output
69	$\overline{\text{XRST}}$	O	CD LSI reset output
70	$\overline{\text{XSTB}}$	O	CD LSI strobe output
71,72	NC		Not used
73	TEST	I	Test input terminal
74	SL	I	Signal level input from tuner
75	LLEVEL	I	Level indicator L channel input
76	MODEL1	I	Model select input
77	RLEVEL	I	Level indicator R channel input
78	EJTSNS	I	CD disc EJECT position detect
79	DSCSNS	I	CD disc insert sense input
80	VDSENS	I	VD voltage sense input
81	TEMP	I	Temperature sense input (CD)
82	VDD		A/D converter power supply terminal
83	VDD		A/D converter reference voltage terminal
84	GND		GND
85	RX	I	IP BUS data input
86	TX	O	IP BUS data output
87	GND		GND
88	$\overline{\text{LDET}}$	I	PLL lock sense input
89,90	NC		Not used
91	$\overline{\text{ISENS}}$	I	Illumination sense input
92	$\overline{\text{ASENS}}$	I	ACC power sense input
93	$\overline{\text{BSENS}}$	I	Back up power sense input
94	TUNPDI	I	PLL IC data input
95	KYDT	I	Key data input
96	DPDT	O	Display data output
97	TUNPCK	O	PLL IC clock output
98	TUNPDO	O	PLL IC data output
99	TUNPCE	O	PLL IC chip enable output
100	PEE	O	Beep tone output

*PE5005A



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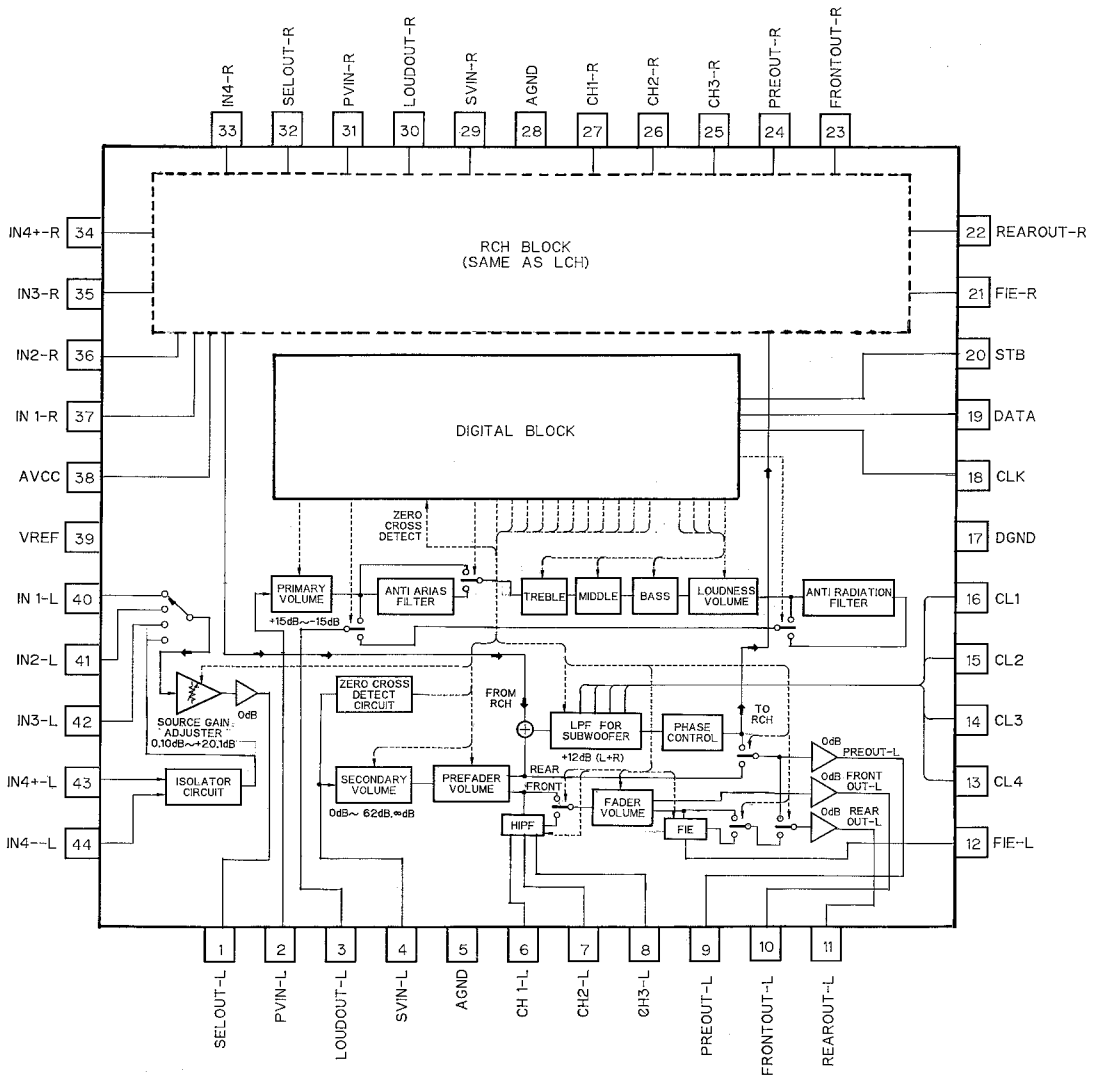

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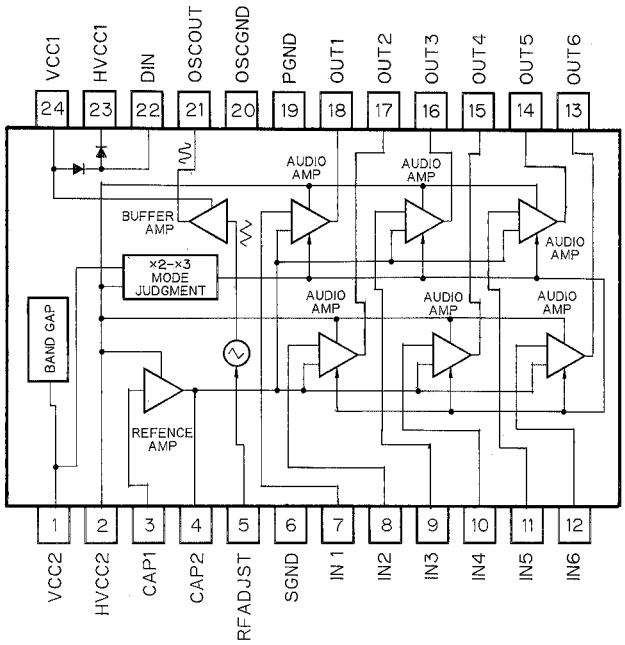

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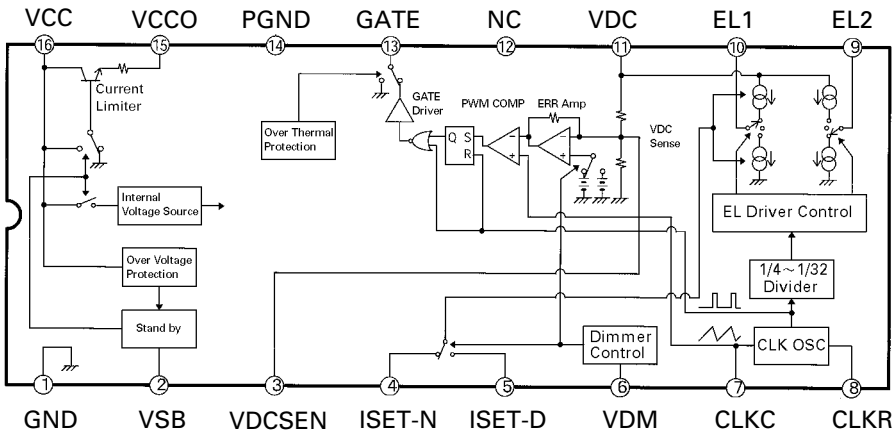

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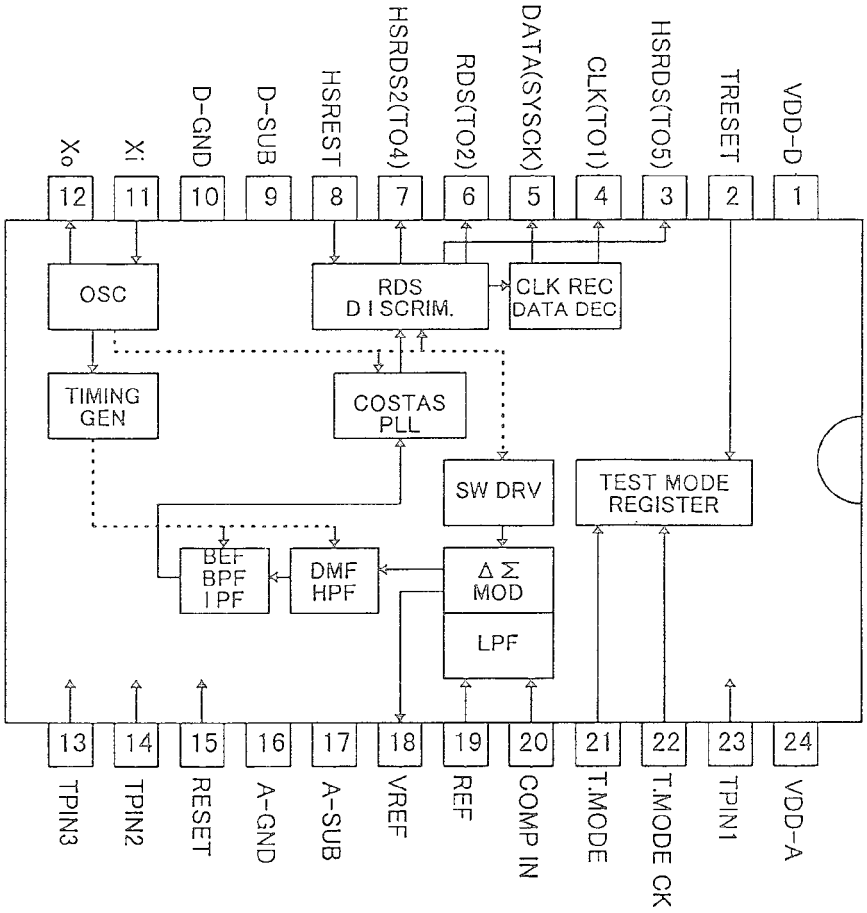

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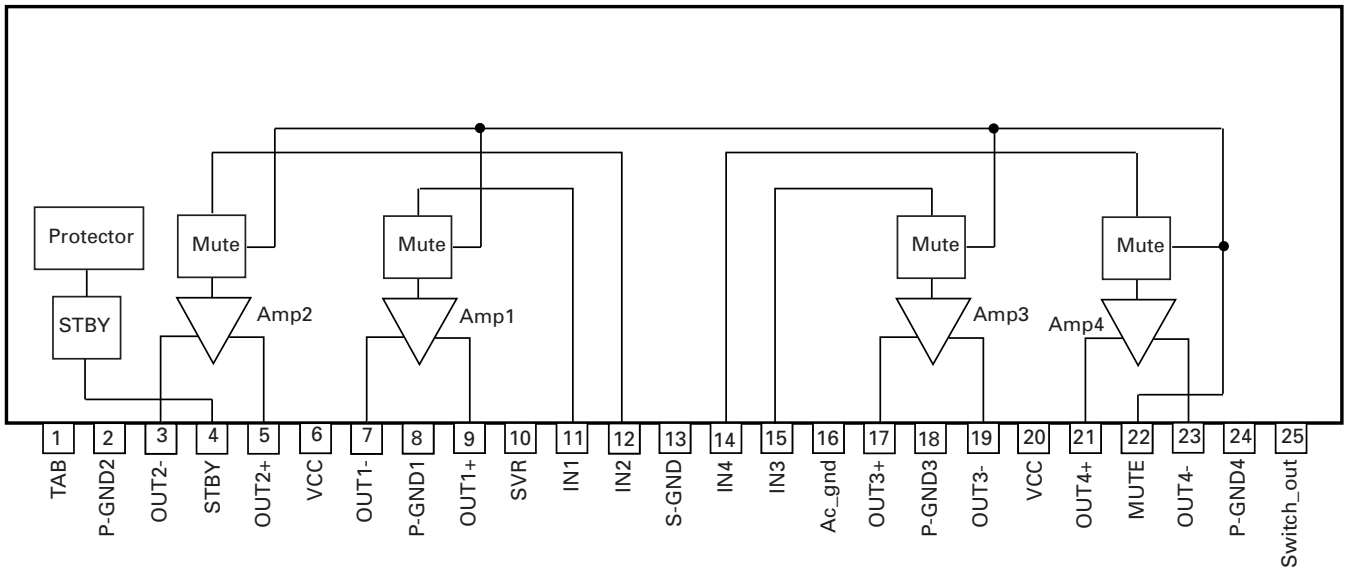
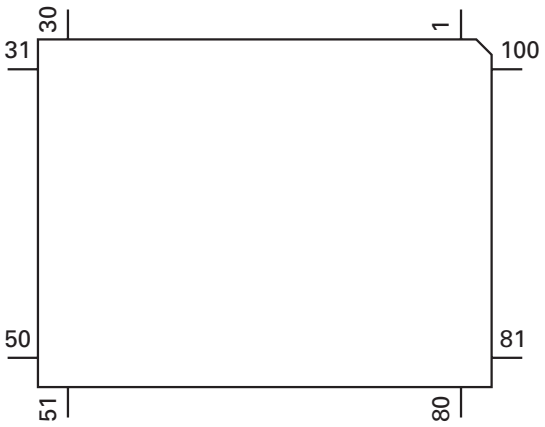


● Pin Functions (PD6279A)

Pin No.	Pin Name	I/O	Function and Operation
1–42	SEG41–0	O	LCD segment output
43–46	COM3–0	O	LCD common output
47–49	V1–V3		LCD bias power supply
50	VCC		Power supply terminal
51	LED	O	LED control output
52	SO	O	System micro computer UART communication data output
53	SI	I	System micro computer UART communication data input
54,55	MOD0,1		GND
56	RST	I	Reset signal input terminal
57	X0		Crystal oscillator connection pin
58	X1		Crystal oscillator connection pin
59	VSS		GND
60	REMIN	I	Remote control reception input
61	DIM	O	Dimmer select output
62	GRN/$\overline{\text{AMB}}$	O	Illumination color select output
63–66	KDT4–1	I	Key data input
67–72	KST6–1	O	Key strobe output
73–100	SEG69-42	O	LCD segment output

*PD6279A



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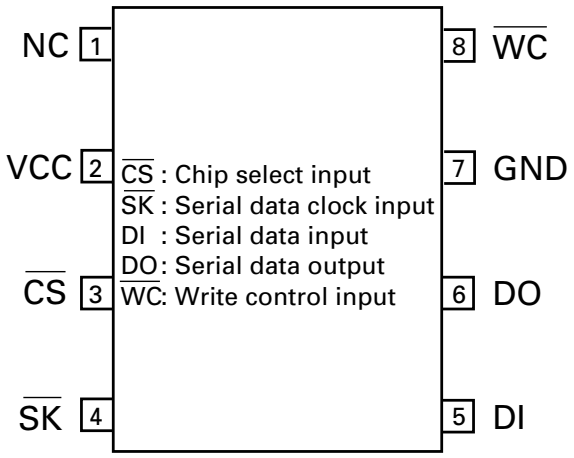
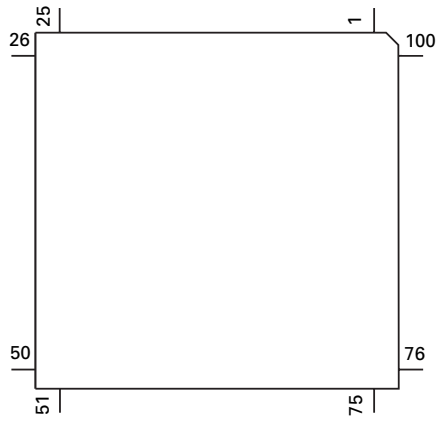


● **Pin Functions (UPD63710GC)**

Pin No.	Pin Name	I/O	Function and Operation
1	GND		Logic circuit GND
2	HOLD	I/O	Defect detection output
3	MIRR	I/O	MIRR output
4	FOK	O	RFOK signal output
5	$\overline{\text{RST}}$	I	Reset signal input
6	A0	I	Command/parameter identification signal input
7	$\overline{\text{STB}}$	I	Data strobe signal input
8	$\overline{\text{SCK}}$	I	Clock signal input for serial data input/output
9	SO	O	Serial data and status signal output
10	SI	I	Serial data input
11	VDD		Positive power supply terminal to logic circuit
12	DA.VDD		Positive power supply terminal to D/A converter
13	NC		Not used
14, 15	DA.GND		D/A converter GND
16	NC		Not used
17	DA.VDD		Positive power supply terminal to D/A converter
18	R+	O	Right channel audio data output
19	R-	O	Right channel audio data output
20	L-	O	Left channel audio data output
21	L+	O	Left channel audio data output
22	X.VDD		Positive power supply terminal to crystal oscillation circuit
23	$\overline{\text{XTAL}}$	O	Crystal oscillator connect pin
24	XTAL	I	Crystal oscillator connect pin
25	X.GND		Crystal oscillation circuit GND
26	VDD		Positive power supply terminal to logic circuit
27	EMPH	O	Output pin for the pre-emphasis data in the sub-Q code
28	FLAG	O	Flag output pin to indicate that audio data currently being output consists of noncorrectable data
29	DIN	I	Serial data input to internal DAC
30	DOUT	O	Serial audio data output
31	SCKIN	I	Serial clock input to internal DAC
32	SCKO	O	Audio data that is output from DOUT changes at rising edge of this clock
33	LRCKIN	I	LRCK signal input to internal DAC
34	LRCK	O	Signals to distinguish the right and left channels of the audio data output from DOUT
35	WDCK	O	Output double the frequency of LRCK
36	TX	O	Digital audio interface data output
37	GND		Logic circuit GND
38	C16M	O	Oscillator clock buffering output
39	LIMIT	I	Status of the pin is output at Bit 5 of the status output
40	VDD		Positive power supply terminal to logic circuit
41	LOCK	O	EFM synchronous detection signal
42	RFCK	O	Frame synchronous signal of XTAL-system
43	WFCK	O	Frame synchronous signal of PLL-system
44	PLCK	O	Monitor pin of bit clock
45	GND		Logic circuit GND
46	C1D1	O	Output pin for indicating the C1 error correction results
47	C1D2	O	Output pin for indicating the C1 error correction results
48	C2D1	O	Output pin for indicating the C2 error correction results
49	C2D2	O	Output pin for indicating the C2 error correction results
50	C2D3	O	Output pin for indicating the C2 error correction results
51	VDD		Positive power supply terminal to logic circuit
52	PACK	O	CD-TEXT PACK synchronous signal
53	TSO	O	CD-TEXT data serial output
54	TSI	I	CD-TEXT control parameter serial input
55	$\overline{\text{TSCK}}$	I	CD-TEXT serial clock input
56	TSTB	I	CD-TEXT parameter strobe signal input
57	GND		Logic circuit GND
58	TEST	I	Test pin

Pin No.	Pin Name	I/O	Function and Operation
59	ATEST	I/O	Test pin
60	RFMODE	I	Use/not use select for internal RF amplifier
61	A.GND		Analog circuit GND
62	FD	O	Focus drive output
63	TD	O	Tracking drive output
64	SD	O	Sled drive output
65	MD	O	Spindle drive output
66	DACO	O	DAC output for adjustment
67	FBAL	O	DAC output for adjustment
68	TBAL	O	DAC output for adjustment
69	TEVCA	O	DAC output for adjustment
70	A.VDD		Power supply terminal to analog circuit
71	EFM	O	EFM signal output
72	ASY	I	EFM comparator reference voltage input
73	C3T		3T detection capacitor additional pin
74	RFI	I	RF signal input for EFM data regulation
75	AGCO	O	RF signal output of after gain adjustment
76	AGCI	I	RF-AGC amplifier input
77	RFO	O	RF summing amplifier output
78	EQ2		RF amplifier equalizer parts additional pin
79	EQ1		RF amplifier equalizer parts additional pin
80	RF-	I	RF summing amplifier inverted input
81	A.GND		Analog circuit GND
82	A	I	Photo detector A input
83	C	I	Photo detector C input
84	B	I	Photo detector B input
85	D	I	Photo detector D input
86	F	I	Photo detector F input
87	E	I	Photo detector E input
88	A.VDD		Positive power supply terminal to analog circuit
89	REFOUT	O	Reference electric potential output
90	FE-	I	Focus error amplifier inverted input
91	FEO	I/O	Focus error amplifier output
92	TE-	I	Tracking error amplifier inverted input
93	TEO	I/O	Tracking error amplifier output
94	TE2	I/O	Tracking error output of after amplification
95	TEC	I	Tracking comparator input
96	A.GND		Analog circuit GND
97	PD	I	PD detection signal input for LD output monitor
98	LD	O	LD control current output
99	PN	I	APC circuit control polarity set pin
100	A.VDD		Positive power supply terminal to analog circuit

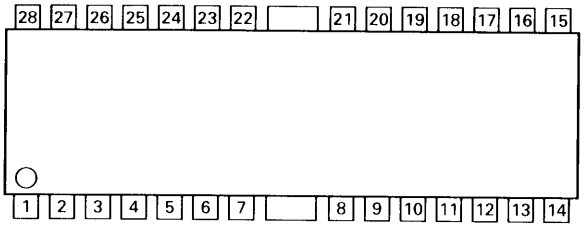
*UPD63710GC



● **Pin Functions (BA5985FM)**

Pin No.	Pin Name	I/O	Function and Operation
1	FWD	I	Loading driver FWD input
2	OPIN1(+)	I	CH1 pre-amplifier input
3	OPIN1(–)	I	CH1 pre-amplifier inverted input
4	OPOUT1	O	CH1 pre-amplifier output
5	OPIN2(+)	I	CH2 pre-amplifier input
6	OPIN2(–)	I	CH2 pre-amplifier inverted input
7	OPOUT2	O	CH2 pre-amplifier output
8	VCC		Power supply
9	VOL(–)	O	Loading driver negative output
10	VOL(+)	O	Loading driver positive output
11	VO2(–)	O	Driver CH2 negative output
12	VO2(+)	O	Driver CH2 positive output
13	VO1(–)	O	Driver CH1 negative output
14	VO1(+)	O	Driver CH1 positive output
15	VO4(+)	O	Driver CH4 positive output
16	VO4(–)	O	Driver CH4 negative output
17	VO3(+)	O	Driver CH3 positive output
18	VO3(–)	O	Driver CH3 negative output
19	GND		GND
20	BIAS	I	Bias input
21	MUTE		Mute control
22	OPOUT3	O	CH3 pre-amplifier output
23	OPIN3(–)	I	CH3 pre-amplifier inverted input
24	OPIN3(+)	I	CH3 pre-amplifier input
25	OPOUT4	O	CH4 pre-amplifier output
26	OPIN4(–)	I	CH4 pre-amplifier inverted input
27	OPIN4(+)	I	CH4 pre-amplifier input
28	REV	I	Loading driver REV input

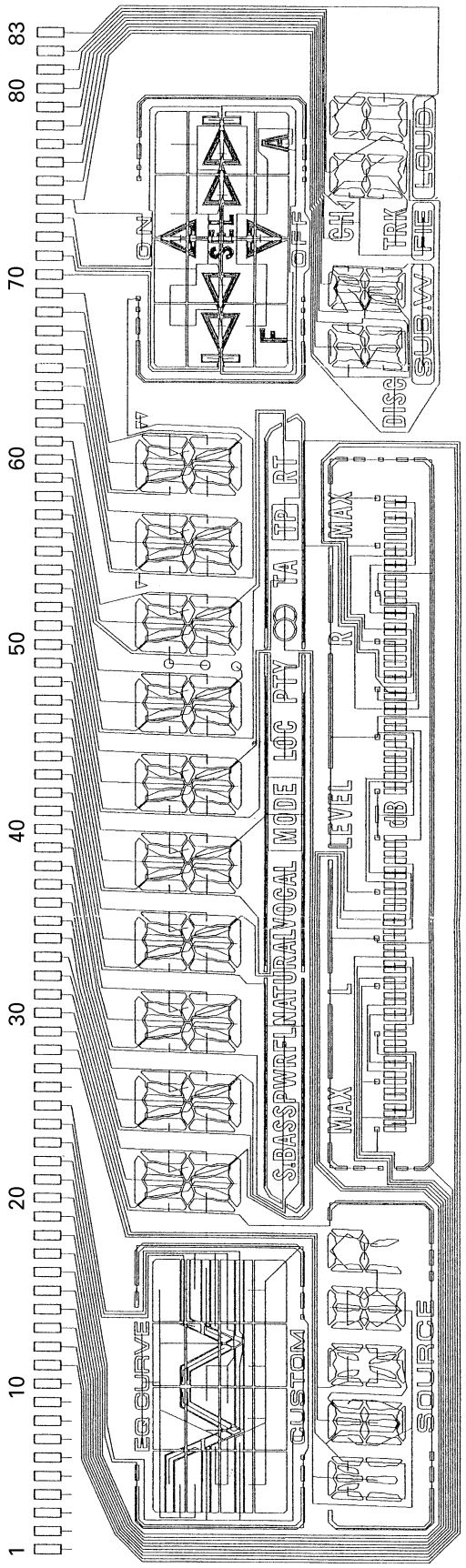
BA5985FM



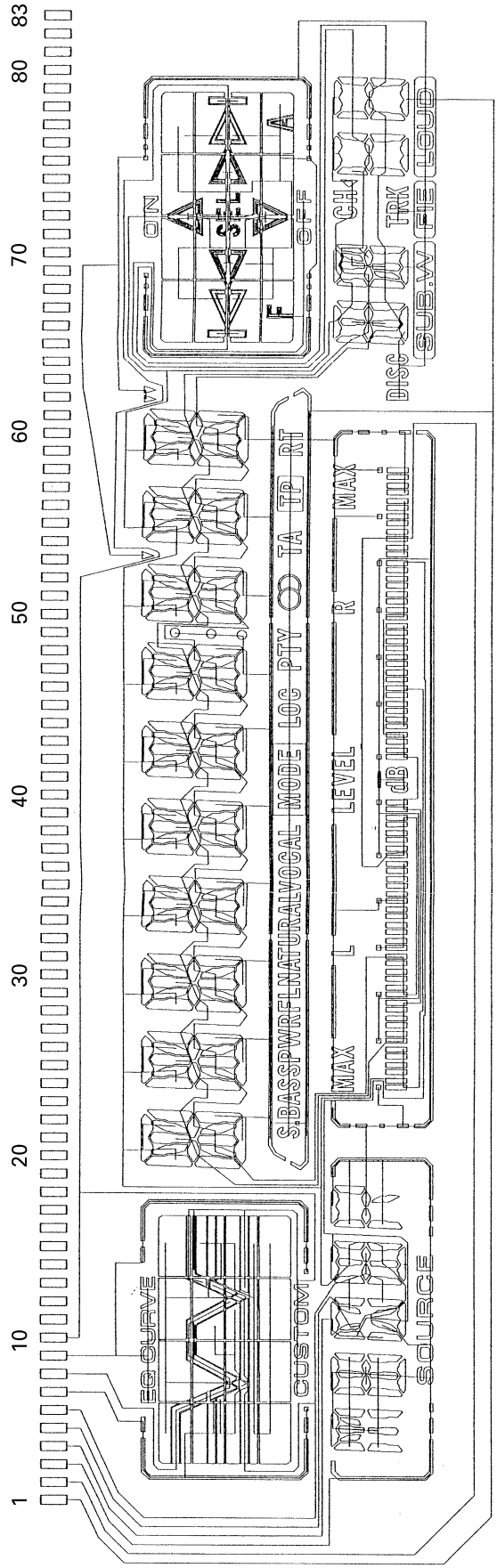
7.1.2 DISPLAY

● **CAW1519(DEH-P700R/UC, DEH-P7000R/UC)**

SEGMENT

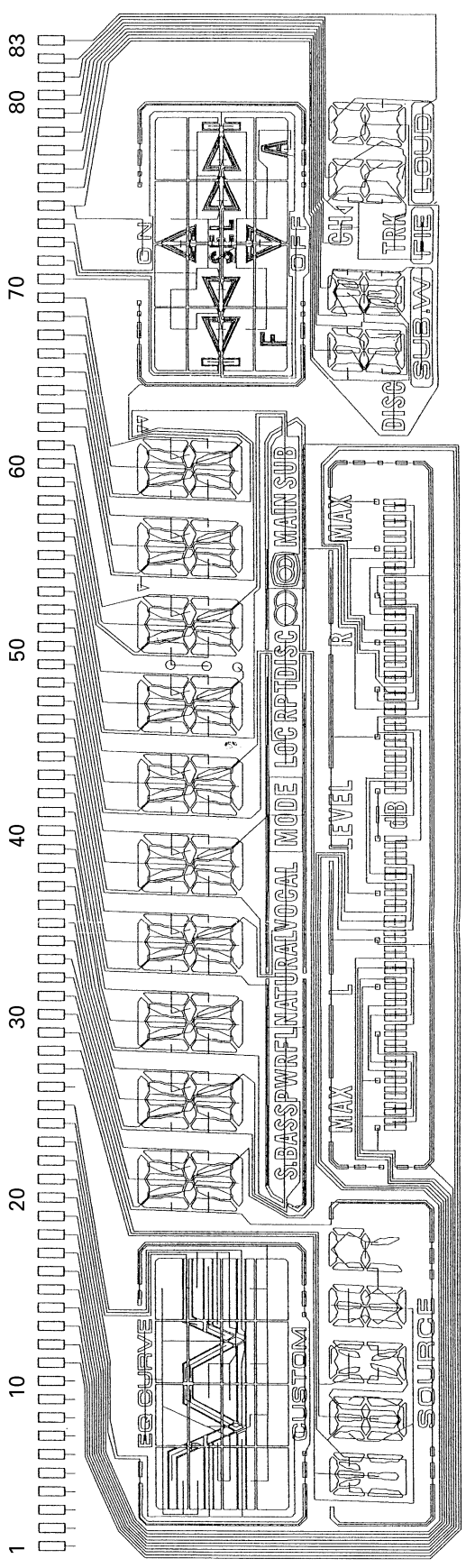


COMMON

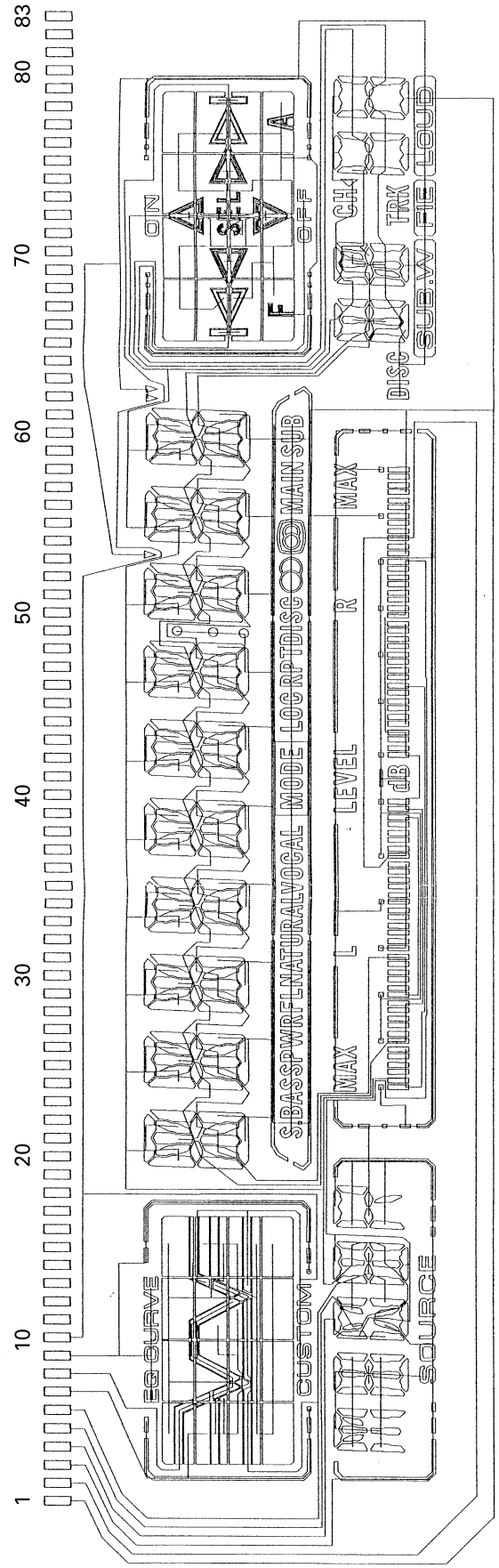


● **CAW1518(DEH-P7050/ES)**

SEGMENT



COMMON



7.2 DIAGNOSIS

7.2.1 DISASSEMBLY

● **Removing the Case Unit(not shown)**

1. Remove the Case Unit.

● **Removing the Panel Assy(Fig.1)**

1 Remove the two screws.

2 Disconnect the connectors and then remove the Panel Assy.

● **Removing the CD Mechanism Module (not shown)**

1. Remove the four screws.
2. Disconnect the connector, and then remove the CD Mechanism Module.

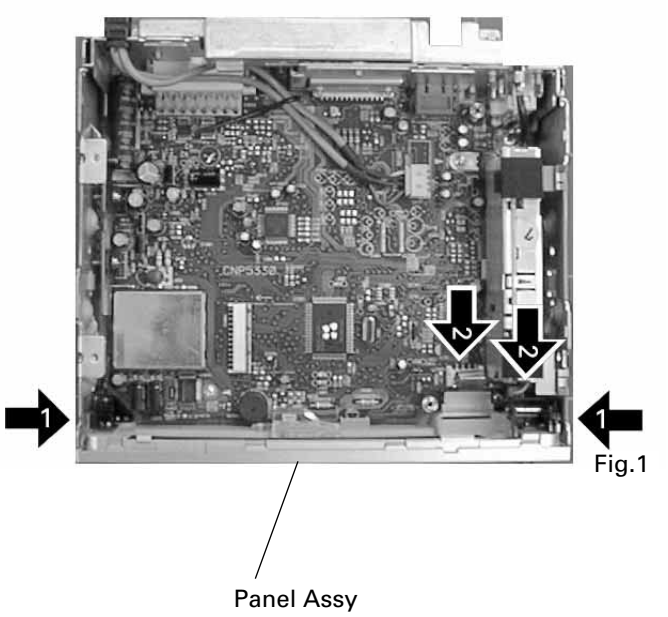


Fig.1

● **Removing the Tuner Amp Unit(Fig.2,3)**

1 Remove the three screws.

2 Remove the screw.

3 Remove the two screws.

4 Straighten the tabs at two locations indicated. Remove the Tuner Amp Unit.

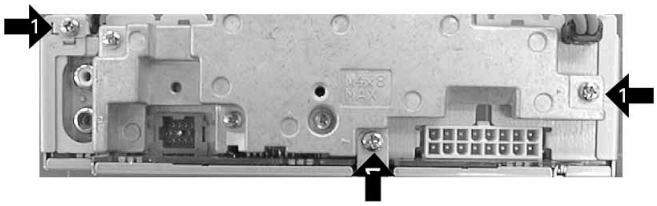


Fig.2

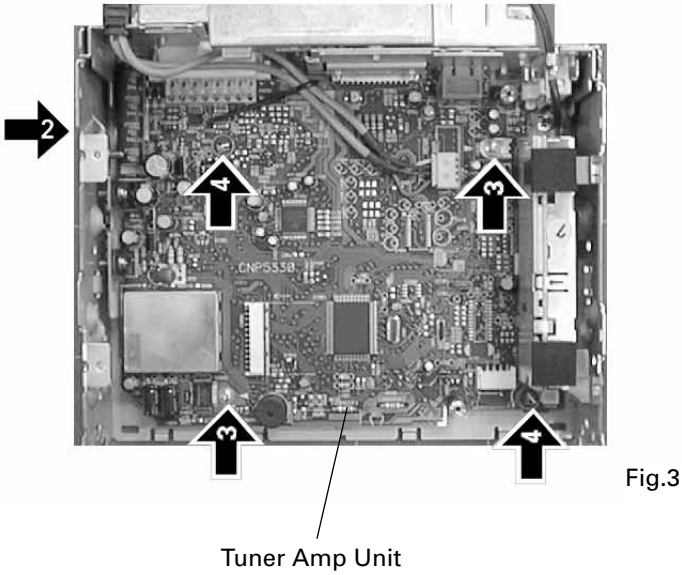
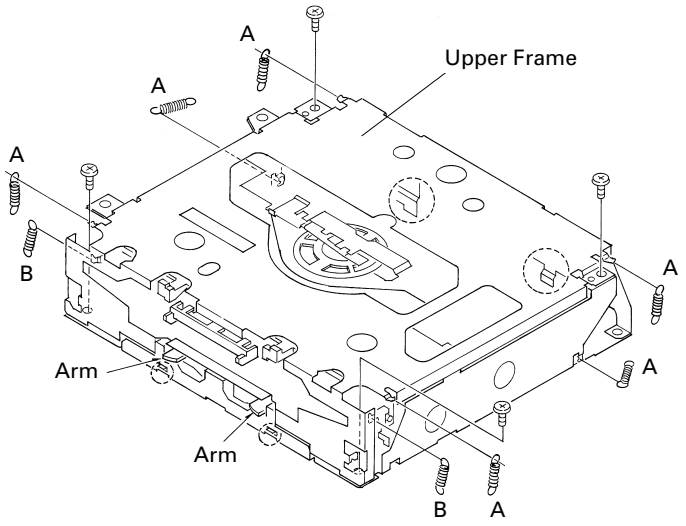


Fig.3

● Removing the Upper Frame

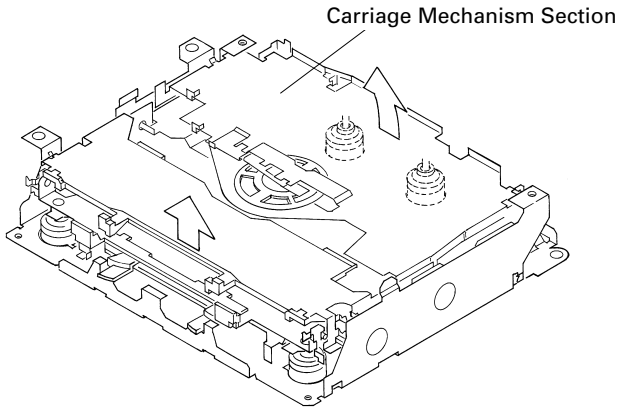
1. Remove six Springs A, two Springs B and four Screws.
2. Remove two Tabs situated on rear side of the Upper Frame, remove two Arms on the front side, then remove two Tabs on the front side.



● Removing the Carriage Mechanism

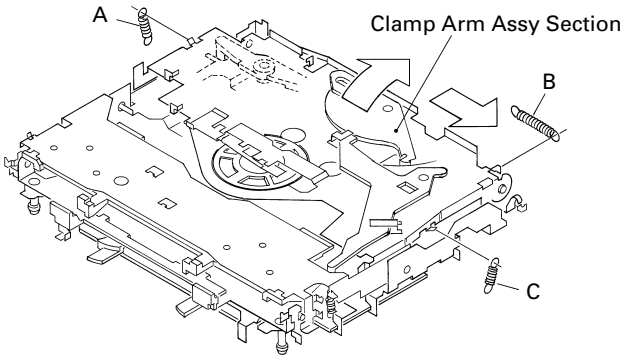
1. Disengage the Carriage Mechanism from the two dampers situated in the front side by driving it up, then disengage and remove the mechanism from the two dampers by driving it up aslant into front side direction.

Note : When assembling the Carriage Mechanism, coat the dampers with alcohol prior to the assembly.



● Removing the Clamp Arm Assy

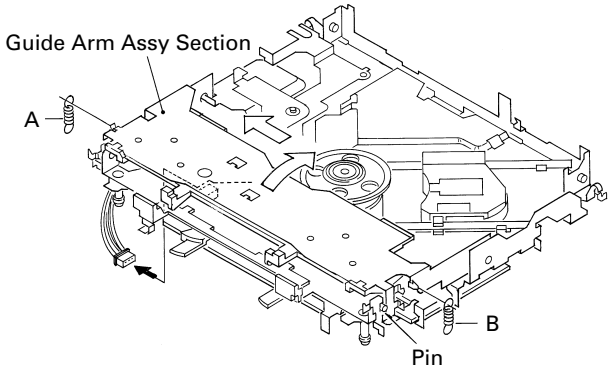
1. Remove a Spring A, a B and a Spring C.
2. Drive the Clamp Arm Assy up into rear side direction, then disengage the arm from its current position Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward right side to remove it.



● Removing the Guide Arm Assy

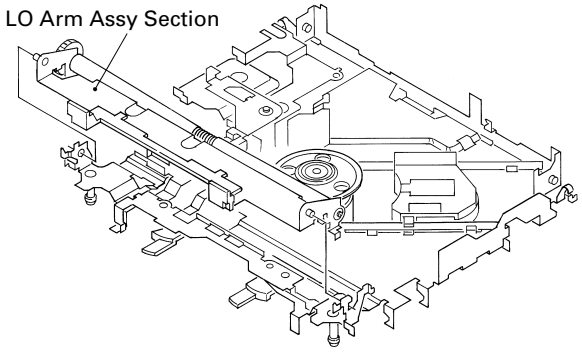
1. Remove a connector, a spring A and B
2. Drive the Guide Arm Assy up aslant into rear side direction, then remove it from a Pin. Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward left side to remove it.

Note : When assembling the guide arm assembly, route the cord inside the assembly. In this operation, care must be exercised so that cord may be caught by the gear.



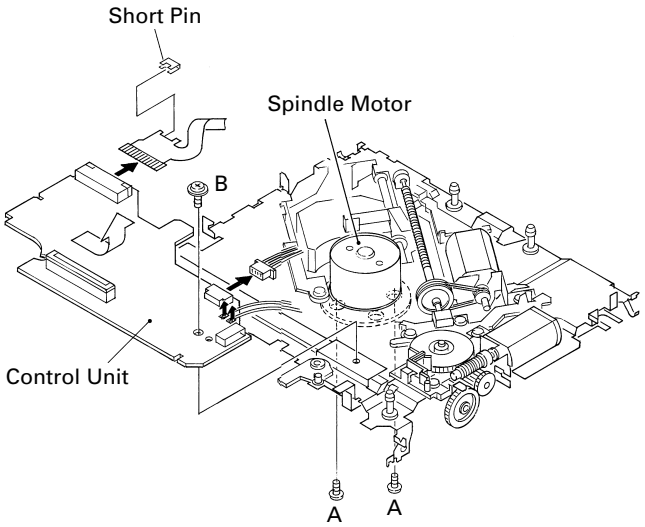
● Removing the LO Arm Assy

1. Remove two Pins to dismount the LO Arm Assy.



● Removing the Control Unit and the Spindle Motor

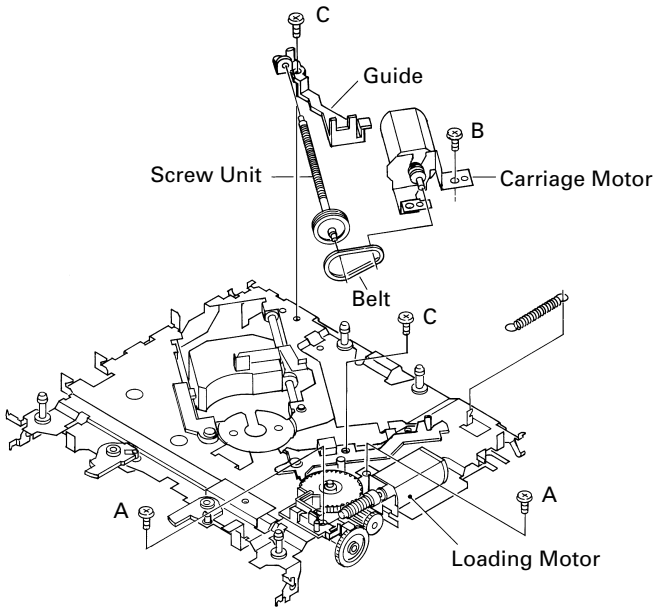
1. Remove from the connector after mounting the short pin on the flexible PCB of the pickup unit.
2. Remove two Soldered joints, then remove two Screws A.
3. Remove two connectors and a Screw B.
4. Disengage the Control Unit from two Tabs, then dismount the unit by sliding it toward left.
5. Dismount the Spindle Motor.



● Removing the Loading Motor and Carriage Motor

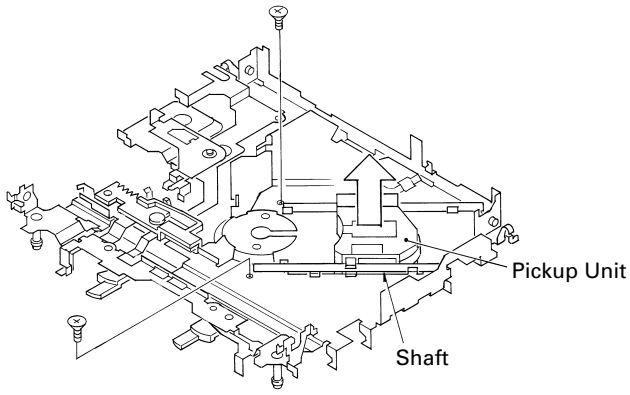
1. Remove the Spring and two Screws A.
2. Dismount the Loading Motor.
3. Remove the Belt, a Screw B, two Screws C, a Guide and a Screw Unit.
4. Dismount the Carriage Motor.

Note : When assembling the Belt, use care so that it may not be contaminated by grease.



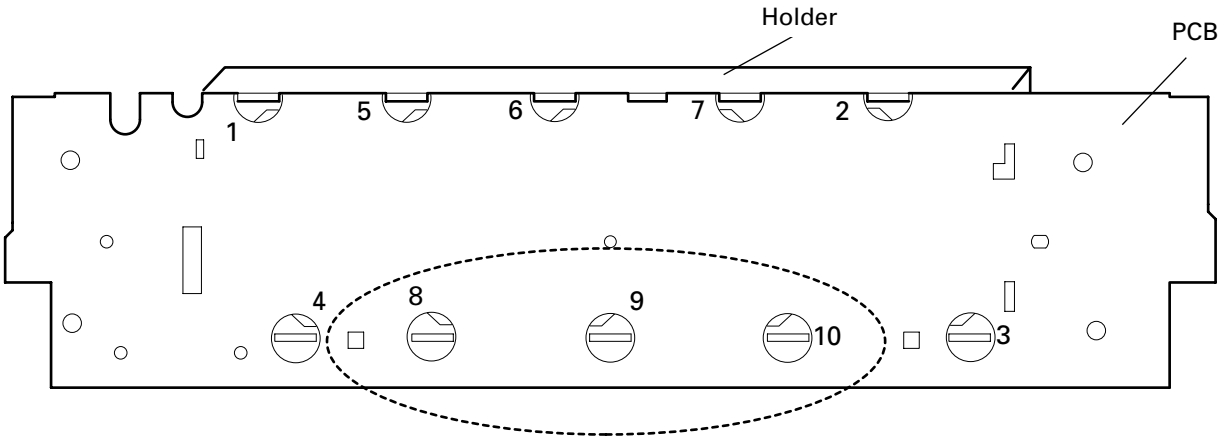
● Removing the Pickup Unit

1. Remove two Screws and a Shaft.
2. Dismount the Pickup Unit.



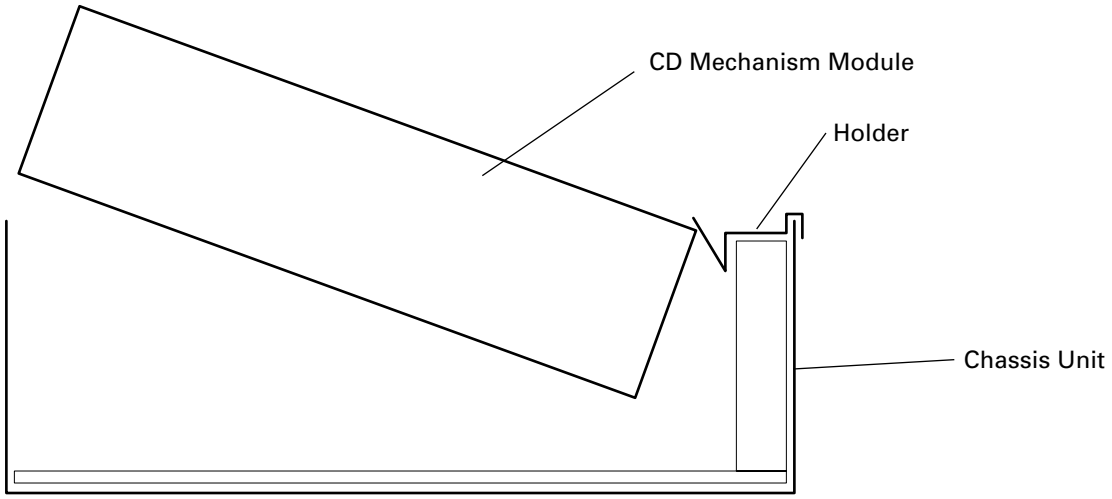
● Precautions on Holder mounting

When mounting a holder on the keyboard unit PCB, do not bend the claws 8 to 10. Otherwise, an unstable LCD indication may result when pressing a button.



● Precautions on CD Mechanism Module mounting

When mounting a CD mechanism module on the chassis unit, mount it with an angle, as shown in the figure, in order to prevent the holder from being bent. When mounting is completed, make sure that the holder is contacting the CD mechanism module.



7.2.2 TEST MODE

● Error Messages

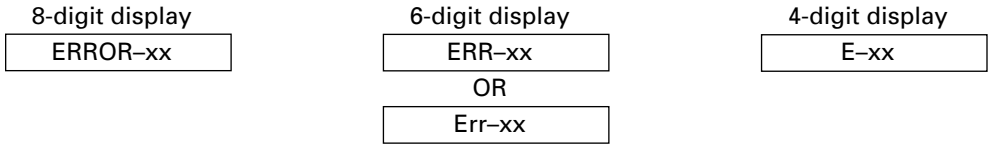
If a CD is not operative or stopped during operation due to an error, the error mode is turned on and cause(s) of the error is indicated with a corresponding number. This arrangement is intended at reducing nonsense calls from the users and also for facilitating trouble analysis and repair work in servicing.

(1) Basic Indication Method

1) When SERRORM is selected for the CSMOD (CD mode area for the system), error codes are written to DMIN (minutes display area) and DSEC (seconds display area). The same data is written to DMIN and DSEC. DTNO remains in blank as before.

2) Head unit display examples

Depending on display capability of LCD used, display will vary as shown below. xx contains the error number.



(2) Error Code List

Code	Class	Displayed error code	Description of the code and potential cause(s)
10	Electricity	Carriage Home NG	CRG can't be moved to inner diameter. CRG can't be moved from inner diameter. → Failure on home switch or CRG move mechanism.
11	Electricity	Focus Servo NG	Focusing not available. → Stains on rear side of disc or excessive vibrations on REWRITABLE.
12	Electricity	Spindle Lock NG	Spindle not locked. Sub-code is strange (not readable). → Failure on spindle, stains or damages on disc, or excessive vibrations.
		Subcode NG	A disc not containing CD-R data is found. Turned over disc are found, though rarely. → Failure on home switch or CRG move mechanism.
		RF AMP NG	An appropriate RF AMP gain can't be determined. → CD signal error.
17	Electricity	Setup NG	APC protection doesn't work. Focus can be easily lost. → Damages or stains on disc, or excessive vibrations.
30	Electricity	Search Time Out	Failed to reach target address. → CRG tracking error or damages on disc.
A0	System	Power Supply NG	Power (VD) is ground faulted. → Failure on SW transistor or power supply (failure on connector).

Remarks: Mechanical errors are not displayed (because a CD is turned off in these errors).

Unreadable TOC does not constitute an error. An intended operation continues in this case.

A newly designed head unit must conform to the example given above.

Upper digits of an error code are subdivided as shown below:

1x: Setup relevant errors, 3x: Search relevant errors, 3x: Search relevant errors, Ax: Other errors.

● New Test Mode

S-CD plays the same way as before.

If an error such as off focus, spindle unlocking, unreadable sub-code, or sound skipping occurs after setup, its cause and time occurred (in absolute time) are displayed.

During setup, operational status of the control software (internal RAM: CPOINT) is displayed.

These displays and functions are prepared for enhancing aging in the servicing and efficiency of trouble analysis.

(1) Shifting to the New Test Mode

① Turn on the current test mode by starting the reset from the key (it varies between the products).

② Select S-CD for the source through the specified procedure including use of the [SOURCE] key, and inserting the disc. Then, press the [Jump Mode Selector] key while maintaining the regulator turned off.

③ After the above operations, the new test mode remains on irrespective of whether the S-CD is turned on or off. You can reset the new test mode by turning on the reset start.

* With some products, the new test mode can be reset through the same operations as that employed for shifting to the STBY mode (while maintaining the Acc turned off).

(2) Key Correspondence

Key	Test mode		New test mode	
(Example)	Power Off	Power On	In-play	Error Production
BAND	To power on (offset adjustment performed)	To power off	–	Time/Err.No. switching
►	–	FWD-Kick	FF/TR+	–
◄	–	REV-Kick	REV/TR-	–
1	–	T.Close (AGC performed) /parameter display switching	Scan	–
2	RF AMP gain switching	Parameter display switching /T.BAL adjustment/T.Open	Mode	–
3	To power on (offset adjustment not performed)	F.Close/RF AGC/F.T.AGC	–	–
6	–	F.Mode switching /T.Close (no AGC)/Jump switching	Auto/Manu	T.No./Time switching

Note: Eject and CD on/off is performed in the same procedure as that for the normal mode.

(3) Cause of Error and Error Code

Code	Class	Contents	Description and cause
40	Electricity	Off focus detected.	FOK goes low. → Damages/stains on disc, vibrations or failure on servo.
41	Electricity	Spindle unlocked.	FOK = Low continued for 50 msec. → Damages/stains on disc, vibrations or failure on servo.
42	Electricity	Sub-code unreadable.	Sub-code was unreadable for 50 msec. → Damages/stains on disc, vibrations or failure on servo.
43	Electricity	Sound skipping detected.	Last address memory function was activated. → Damages/stains on disc, vibrations or failure on servo.

Note: Mechanical errors during aging are not displayed.

The error codes should be indicated in the same way as in the normal mode.

(4) Display of Operational Status (CPOINT) during Setup

Status No.	Contents	Protective action
00	CD+5V ON process in progress.	None
01	Servo LSI initialization (1/3) in progress.	None
02	Servo LSI CRAM initialization in progress.	None
03	Servo LSI initialization (2/3) in progress.	None
04	Offset adjustment (1/3) in progress.	None
05	Offset adjustment (2/3) in progress.	None
06	Offset adjustment (3/3) in progress.	None
07	FZD adjustment in progress.	None
08	Servo LSI initialization (3/3) in progress.	None
10	Carriage move to home position started.	None
11	Carriage move to home position started.	None
12	Carriage is moving toward inner diameter.	Specified 10 seconds has been passed or failure on home switch.
13	Carriage is moving toward outer diameter.	Specified 10 seconds has been passed or failure on home switch.
14	Carriage outer kick in progress.	None
15	Carriage outer diameter feed (1 second) in progress.	None
20	Servo close started.	None
21	Pre-processing for focus search started.	None
22	Spindle rotation and focus search started.	None
23	Waiting for focus close (XSI=Low).	Specified focus search time has been passed.
24	Standing by after focus close is over.	Specified focus search time has been passed.
25	Focus search preprocessing is in progress while setup protection is turned on.	None
26	Focus search preprocessing is in progress while focus recovery is turned on.	None
27	Wait time after focus close is set up.	Off focus.
28	Standing by after focus close is over.	Off focus.
29	Setup (1/2) before T balance adjustment is started.	Off focus.
30	Setup (2/2) before T balance adjustment is started.	Off focus.
31	T balance adjustment started.	Off focus.
32	T balance adjustment (1/2).	Off focus.
33	T balance adjustment (2/2).	Off focus.
34	Waiting for spindle rotation to end. Spindle rough servo.	Off focus.
35	Standing by after spindle rough servo is over.	Off focus.
36	RF AGC started.	Off focus.
37	RF AGC started.	Off focus.
38	RF AGC ending process in progress.	Off focus.
39	Tracking close in progress.	Off focus.
40	Standing by after tracking is closed. Carriage closing in progress.	Off focus.
41	Focus/tracking AGC started.	Off focus.
42	Focus AGC started.	Off focus.
43	Focus AGC in progress.	Off focus.
44	Tracking AGC in progress.	Off focus.
45	Standing by after focus/tracking AGC are over.	Off focus.
46	Spindle processes applicable servo.	Off focus.
47	Check for servo close is started.	Off focus.
48	Check of LOCK pin started.	Off focus or spindle not locked.
49	RF AGC started.	Off focus.
50	RF AGC in progress.	Off focus.
51	Standing by after RF AGC is over.	Off focus.

(5) Display Examples

1) During Setup (When status no. = 11)

TRK No.	MIN.	SEC.
11	11'	11"

2) During Operation (TOC read, TRK search, Play, FF and REV)

The same as in the normal mode.

3) When a Protection Error Occurred

Switch to the following displays (A) and (B) using the [BAND] switch:

(A) Error occurrence timing display in absolute time.

An example: Error occurred in 12th tune at 34'56" in absolute time.

TRK No.	MIN.	SEC.
12	34'	56"

(B) Error No. display

An example: Error #40 (Off focus is detected)

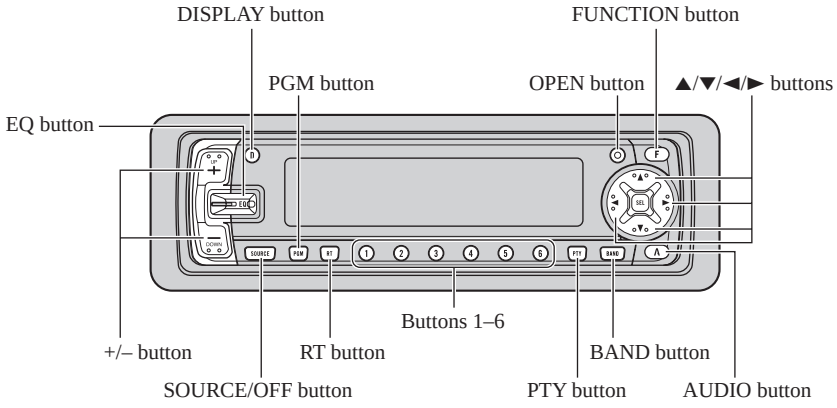
ERROR-40

8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATIONS

Key Finder

Head Unit(DEH-P700R/UC, DEH-P7000R/UC)

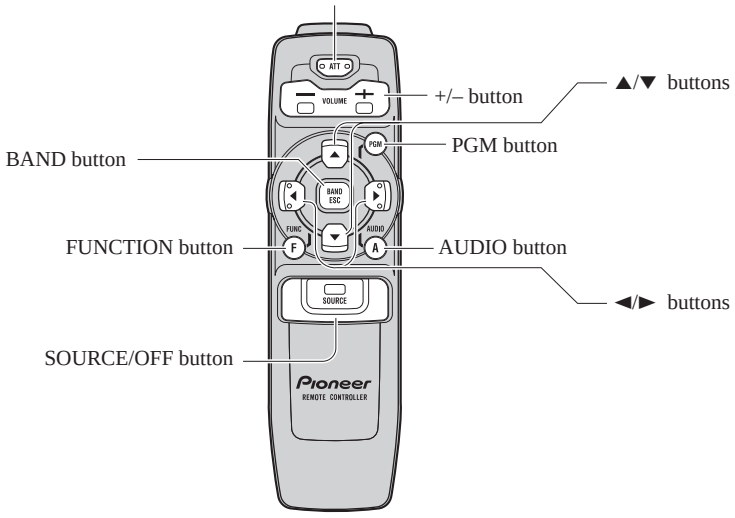


Remote Controller

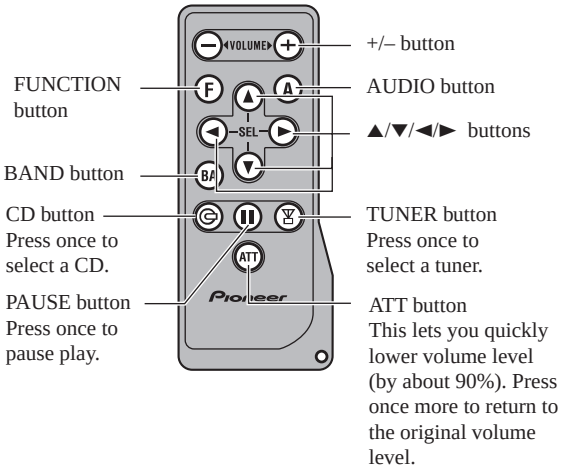
A remote controller that enables remote operation of the head unit is supplied.
Operation is the same as when using buttons on the head unit.

DEH-P700R/UC

ATT button
This lets you quickly lower volume level (by about 90%).
Press once more to return to the original volume level.

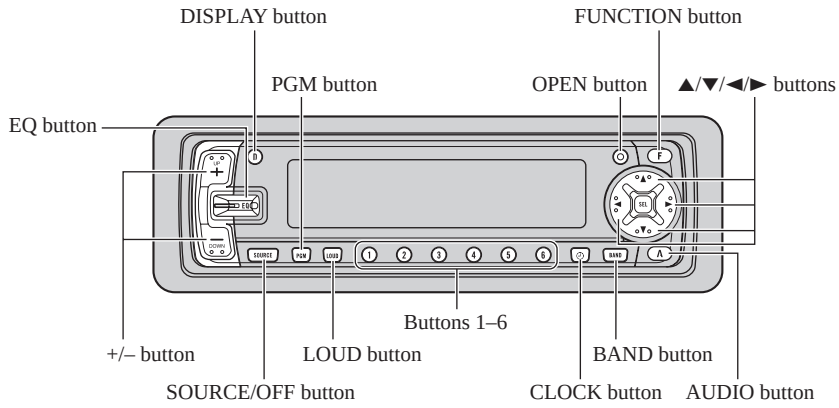


DEH-P7000R/UC


+/– button
FUNCTION button
AUDIO button
▲/▼/◄/► buttons
BAND button
CD button
Press once to select a CD.
TUNER button
Press once to select a tuner.
PAUSE button
Press once to pause play.
ATT button
This lets you quickly lower volume level (by about 90%). Press once more to return to the original volume level.

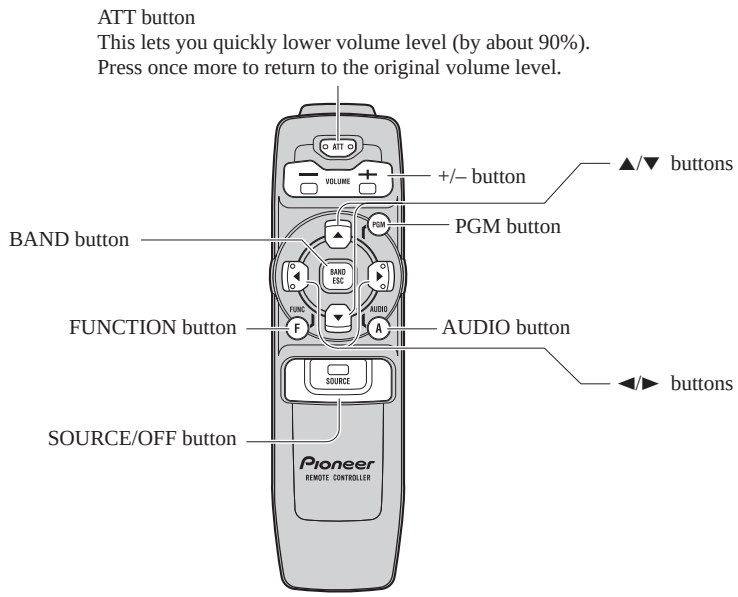
Key Finder

Head Unit(DEH-P7050/ES)



Remote Controller

A remote controller that enables remote operation of the head unit is supplied. Operation is the same as when using buttons on the head unit.



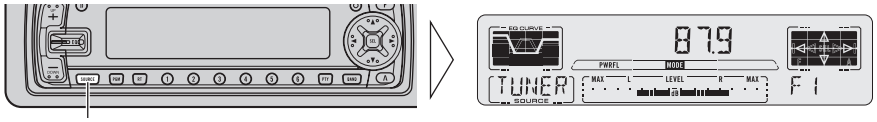
Basic Operation

To Listen to Music

The following explains the initial operations required before you can listen to music.

Note:
- Loading a disc in this product.

1. Select the desired source .

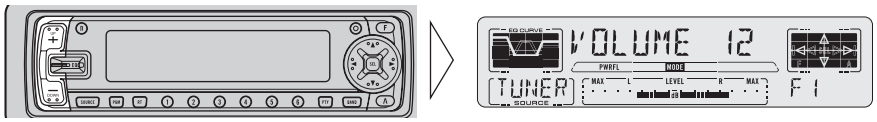


Each press changes the Source ...

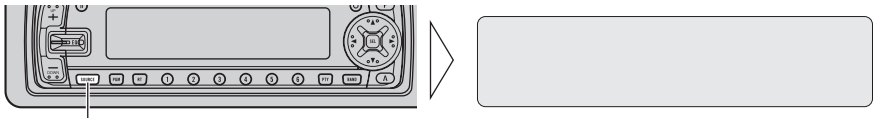
Each press of the SOURCE/OFF button selects the desired source in the following order:
Built-in CD player ➞ Tuner ➞ Multi-CD player ➞ AUX

Note:
- In the following cases, the sound source will not change:
  * No Multi-CD player is connected to this product.
  * No disc is set in this product.
  * No magazine is set in the Multi-CD player.
  * AUX (external input) is set to OFF.

2. Raise or lower the volume.



3. Source OFF.



Hold for 1 second or more

Basic Operation

Basic Operation of Built-in CD Player

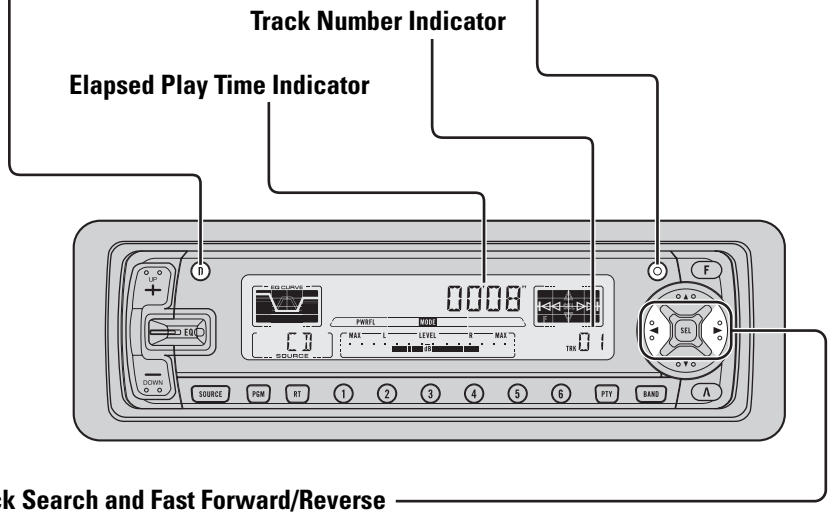
Switching the Display

Each press of the DISPLAY button changes the display in the following order:
Playback mode (Elapsed play time)
→ Disc Title

Note:
- If you switch displays when disc titles have not been input, “NO TITLE” is displayed.

Open

Note:
- Use to open the front panel when loading or ejecting a CD. (The illustration on the right shows the front panel open.)



- **You can select between Track Search or Fast forward/Reverse by pressing the ◄/► button for a different length of time.**

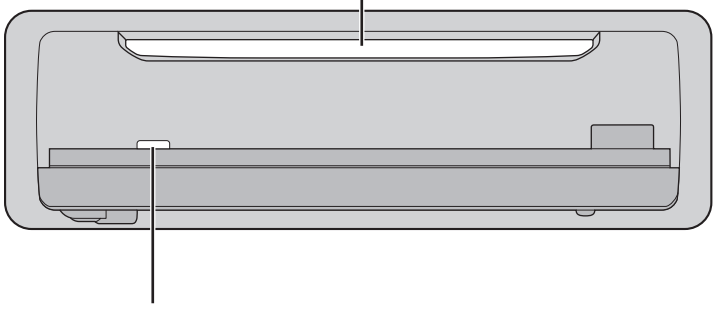
Track Search	0.5 seconds or less
Fast forward/Reverse	Continue pressing

Note:
- If a disc cannot be inserted fully or playback fails, make sure the recorded side is down. Push the EJECT button and check the disc for damage before reinserting it.
- If the built-in CD player cannot operate properly, an error message (such as “ERROR-14”) appears on the display.

Basic Operation

Disc Loading Slot

The built-in CD player plays one standard 12 cm or 8 cm (single) CD at a time. Do not use an adapter when playing 8 cm CD.



Eject

Note:

- The CD function can be turned ON/OFF with the disc remaining in this product.
- Discs left partially inserted after ejection may incur damage or fall out.

Basic Operation

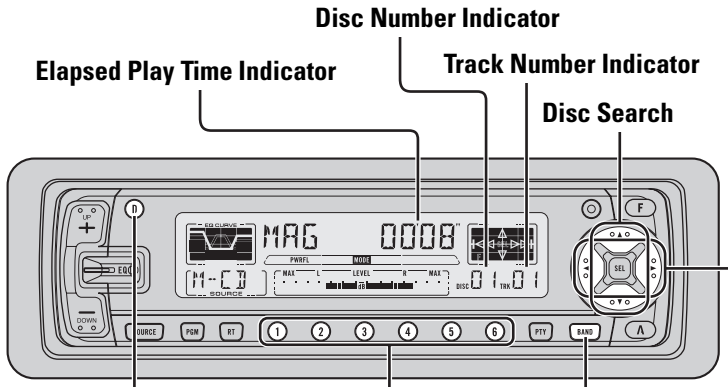
Basic Operation of Multi-CD Player

This product can control a multi-CD player. (With certain old type multi-CD players, using a multiple connection adapter lets you connect multiple units which you can control with this product.)

Track Search and Fast Forward/Reverse

- **You can select between Track Search or Fast forward/Reverse by pressing the ◄/► button for a different length of time.**

Track Search	0.5 seconds or less
Fast forward/Reverse	Continue pressing



Switching the Display

Each press of the DISPLAY button changes the display in the following order:
Playback mode (Elapsed play time)
→ Disc Title

Note:
- If you switch displays when disc titles have not been input, "NO TITLE" is displayed.

Switching the Multi-CD Player

Using a multiple connection adapter lets you connect up to three Multi-CD players.

M-CD 1 → M-CD 2 → M-CD 3
(Displayed about for 2 seconds.)

Disc Number Search (for 6-Disc, 12-Disc types)

- **You can select discs directly with the 1 to 6 buttons. Just press the number corresponding to the disc you want to listen to.**

Note:
- When a 12-Disc Multi-CD Player is connected and you want to select disc 7 to 12, press the 1 to 6 buttons for 2 seconds or longer.

Disc Number Rough Search (for 50-Disc type only)

This handy function lets you select discs loaded in a 50-Disc Multi-CD Player using the 1 to 5 buttons. The 50 discs are divided into five blocks, with each of the 1 to 5 buttons assigned to a block.

- **Select the desired block with the 1 to 5 buttons.**

Note:
- After completing a rough search, use the ▲ and ▼ buttons to select a desired disc.

Note:
- The multi-CD player may perform a preparatory operation, such as verifying the presence of a disc or reading disc information, when the power is turned ON or a new disc is selected for playback. “READY” is displayed.
- When a magazine is loaded into a 50-Disc type Multi-CD Player, information on all the discs in the magazine is read.
  If you start playing a disc on a 50-Disc type Multi-CD Player before reading of information on all discs has been completed, reading of information stops part way through. This will prevent you from using the ITS function. (If you try and use this function, “NOT READY” is displayed.)
  If this happens, reading of information begins again when you switch to a component other than the 50-Disc type Multi-CD Player.
- If the multi-CD player cannot operate properly, an error message such as “ERROR-14” is displayed. Refer to the multi-CD player owner’s manual.
- If there are no discs in the multi-CD player magazine, “NO DISC” is displayed.
- “LOAD” will be displayed in the following cases:
  * If the disc in the extra tray in selected.
  * If the disc in moved from the extra tray to the magazine.
    (Refer to the 50-Disc type multi-CD player owner’s manual.)
- You cannot use the “Ejecting a Single Disc”, “Frequency Play”, “Music Group Play” or “ABC Disc Title Search” functions with this product.

When playing a CD TEXT disc on a CD TEXT compatible Multi-CD Player such as the CDX-P656:
- You can use the following two functions. Refer to Multi-CD Player’s Owner’s Manual for operation details.
  * Title display switching
  * Title scroll
- You cannot switch to the Disc Title Input mode in the Detailed Setting Menu.

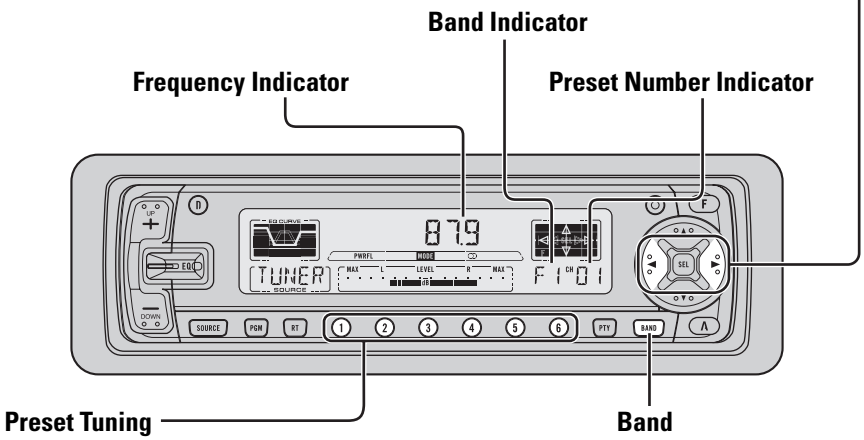
Basic Operation of Tuner

Manual and Seek Tuning

- **You can select the tuning method by changing the length of time you press the ◄/► button.**

Manual Tuning (step by step)	0.5 seconds or less
Seek Tuning	0.5 seconds or more

Note:
- If you continue pressing the button for longer than 0.5 seconds, you can skip broadcast stations. Seek Tuning starts as soon as you stop pressing the button.
- "◯◯" stereo indicator lights when a stereo station is selected.



- **You can memorize broadcast stations in buttons 1 through 6 for easy, one-touch station recall.**

Preset station recall	2 seconds or less
Broadcast station preset memory	2 seconds or more

Note:
- Up to 18 FM stations (6 in FM1, FM2 and FM3) and 6 AM stations can be stored in memory.
- You can also use the ▲ or ▼ buttons to recall broadcast stations memorized in buttons 1 through 6.

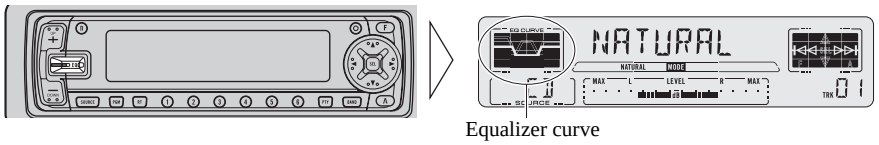
F1 (FM 1) → F2 (FM 2) → F3 (FM 3) → A1 (AM)

Audio Adjustment

Selecting the Equalizer Curve

You can switch between Equalizer curves.

- **Move the EQ button up or down to select the desired Equalizer curve.**



Equalizer curve

POWERFUL ↔ NATURAL ↔ VOCAL ↔ CUSTOM ↔ EQ FLAT ↔ SUPER BASS

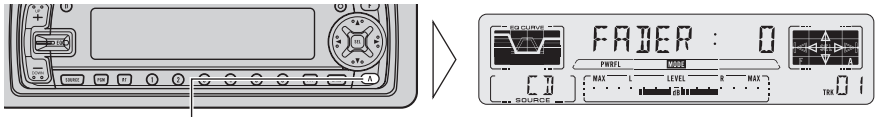
Note:
- "CUSTOM" stores an equalizer curve you have made adjustments to. (Refer to "Equalizer Curve Adjustment" on page 37.)
- You can create different "CUSTOM" curves for different sources. (The built-in CD player and multi-CD player are set to the same Equalizer Curve Adjustment setting automatically.)

Entering the Audio Menu

With this Menu, you can adjust the sound quality.

Note:
- After entering the Audio Menu, if you do not perform an operation within about 30 seconds, the Audio Menu is automatically canceled.
- Audio Menu functions change depending on the Rear Speaker Lead and Subwoofer Controller setting in the Initial Setting Menu.

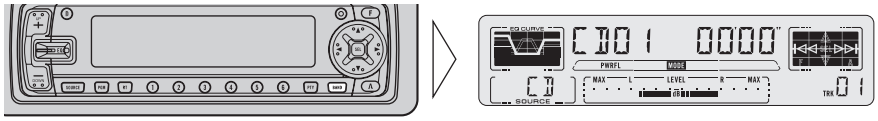
1. **Select the desired mode in the Audio Menu.**



Each press changes the Mode ...

2. **Operate a mode.**

3. **Cancel the Audio Menu.**



Audio Menu Functions

The Audio Menu features the following functions.

Balance Adjustment (FADER)

This function allows you to select a Fader/Balance setting that provides ideal listening conditions in all occupied seats.

1. **Press the AUDIO button and select Fader/Balance mode (FADER) in the Audio Menu.**
2. **Adjust front/rear speaker balance with the ▲/▼ buttons.**
   "FADER F15" – "FADER R15" is displayed as it moves from front to rear.
3. **Adjust left/right speaker balance with the ◄/► buttons.**
   "BAL L 9" – "BAL R 9" is displayed as it moves from left to right.

Note:
- When the Rear Speaker Lead setting is "REAR SP:S/W", you cannot adjust front/rear speaker balance.
- "FADER 0" is the proper setting when 2 speakers are in use.

Equalizer Curve Adjustment (EQ-LOW/MID/HIGH)

You can adjust equalizer curve settings as desired. Adjusted equalizer curve settings are memorized in "CUSTOM".

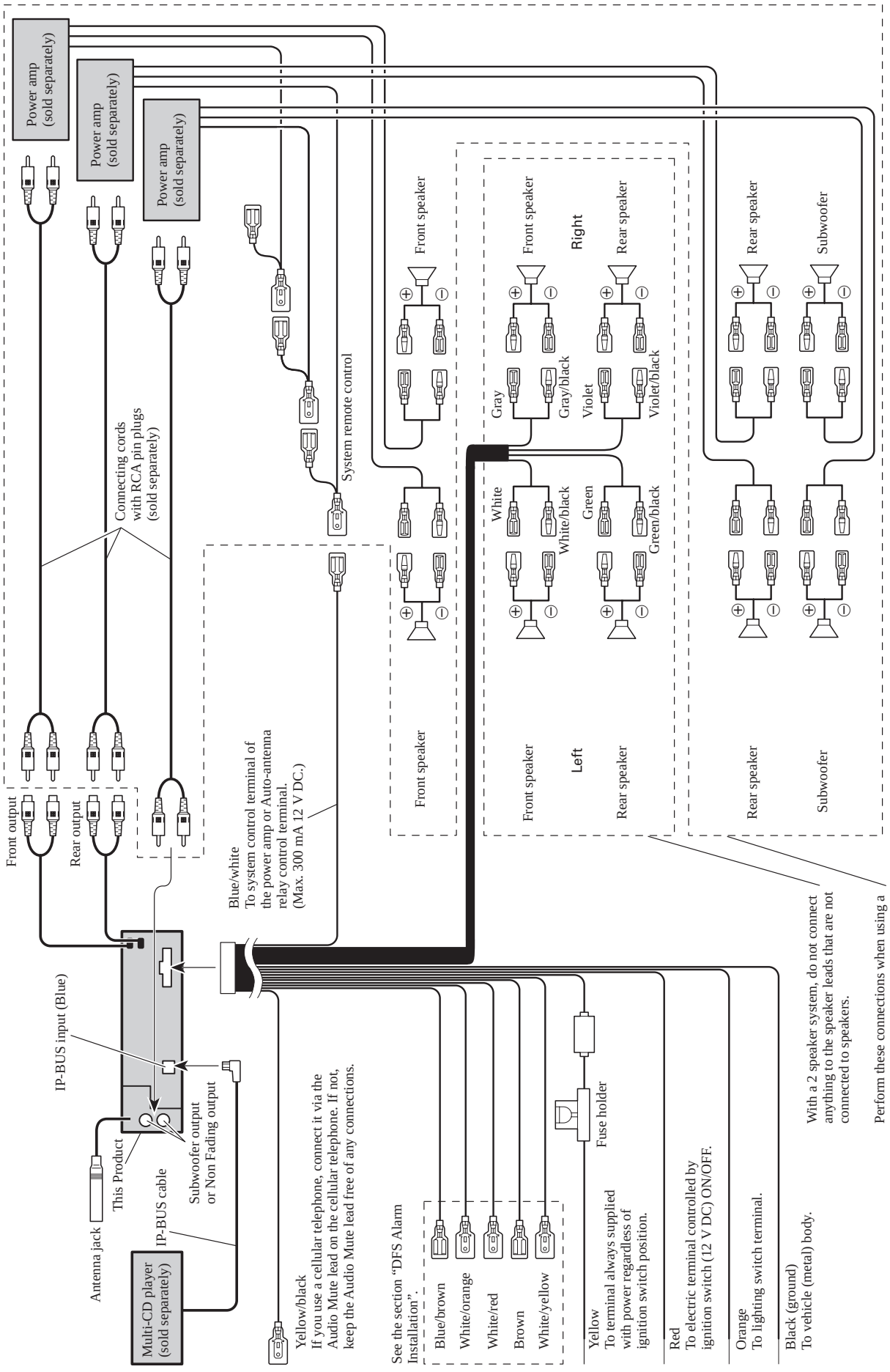
1. **Press the AUDIO button and select the Equalizer mode (EQ-LOW/MID/HIGH) in the Audio Menu.**
2. **Select the band you want to adjust with the ◄/► buttons.**
   EQ-LOW ↔ EQ-MID ↔ EQ-HIGH

3. **Boost or attenuate the selected band with the ▲/▼ buttons.**
   The display shows "+6" – "–6".

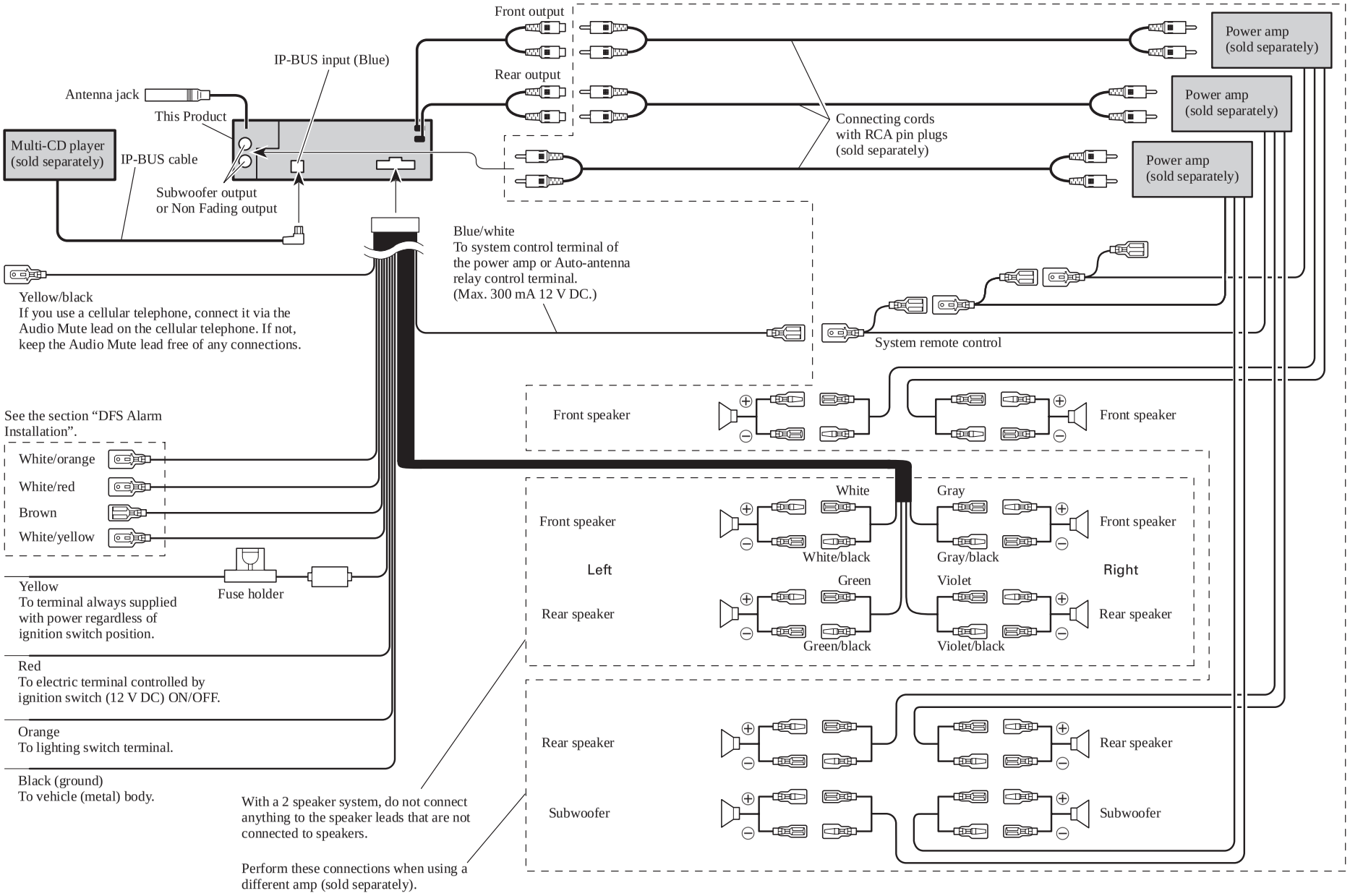
"CUSTOM"

Note:
- If you make adjustments when a curve other than "CUSTOM" is selected, the adjusted curve is stored in memory as a "CUSTOM" curve. Also, the displayed curve switches to that selected before adjustments were made.

● **DEH-P700R/UC**


Power amp (sold separately)
Power amp (sold separately)
Power amp (sold separately)
Front output
Rear output
Connecting cords with RCA pin plugs (sold separately)
System remote control
Front speaker
Front speaker
Front speaker
Front speaker
Rear speaker
Rear speaker
Subwoofer
Gray
Gray/black
Violet
Violet/black
White
White/black
Green
Green/black
Right
Left
Blue/white
To system control terminal of the power amp or Auto-antenna relay control terminal.
(Max. 300 mA 12 V DC.)
IP-BUS input (Blue)
Antenna jack
This Product
IP-BUS cable
Subwoofer output or Non Fading output
Multi-CD player (sold separately)
Yellow/black
If you use a cellular telephone, connect it via the Audio Mute lead on the cellular telephone. If not, keep the Audio Mute lead free of any connections.
See the section "DFS Alarm Installation".
Blue/brown
White/orange
White/red
Brown
White/yellow
Fuse holder
Yellow
To terminal always supplied with power regardless of ignition switch position.
Red
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
Orange
To lighting switch terminal.
Black (ground)
To vehicle (metal) body.
With a 2 speaker system, do not connect anything to the speaker leads that are not connected to speakers.
Perform these connections when using a different amp (sold separately).

● DEH-P7050/ES


Front output
Rear output
IP-BUS input (Blue)
Antenna jack
This Product
Multi-CD player (sold separately)
IP-BUS cable
Subwoofer output or Non Fading output
Connecting cords with RCA pin plugs (sold separately)
Power amp (sold separately)
Power amp (sold separately)
Power amp (sold separately)
Blue/white
To system control terminal of the power amp or Auto-antenna relay control terminal.
(Max. 300 mA 12 V DC.)
System remote control
Yellow/black
If you use a cellular telephone, connect it via the Audio Mute lead on the cellular telephone. If not, keep the Audio Mute lead free of any connections.
See the section “DFS Alarm Installation”.
White/orange
White/red
Brown
White/yellow
Fuse holder
Yellow
To terminal always supplied with power regardless of ignition switch position.
Red
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
Orange
To lighting switch terminal.
Black (ground)
To vehicle (metal) body.
Front speaker
Front speaker
Front speaker
White
White/black
Gray
Gray/black
Front speaker
Left
Right
Rear speaker
Green
Green/black
Violet
Violet/black
Rear speaker
Rear speaker
Rear speaker
Subwoofer
Subwoofer
With a 2 speaker system, do not connect anything to the speaker leads that are not connected to speakers.
Perform these connections when using a different amp (sold separately).

8.2 SPECIFICATIONS

● DEH-P700R/UC, DEH-P7000R/UC

General

Power source ..... 14.4 V DC (10.8 – 15.1 V allowable)
Grounding system ..... Negative type
Max. current consumption ..... 10.0 A
Dimensions
(DIN) (chassis) ..... 178 (W) × 50 (H) × 157 (D) mm
[7 (W) × 2 (H) × 6-1/8 (D) in.]
(nose) ..... 188 (W) × 58 (H) × 18 (D) mm
[7-3/8 (W) × 2-1/4 (H) × 3/4 (D) in.]
(D) (chassis) ..... 178 (W) × 50 (H) × 162 (D) mm
[7 (W) × 2 (H) × 6-3/8 (D) in.]
(nose) ..... 170 (W) × 46 (H) × 13 (D) mm
[6-3/4 (W) × 1-3/4 (H) × 1/2 (D) in.]
Weight ..... 1.6 kg (3.5 lbs)

Amplifier

Continuous power output is 22 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output ..... 45 W × 4
45 W × 2 ch/4 Ω + 70 W × 1 ch/2 Ω (for Subwoofer)
Load impedance
..... 4 Ω (4 – 8 Ω [2 Ω for 1 ch] allowable)
Preout maximum output level/
output impedance ..... 4.0 V/100 Ω
Equalizer (3-Band Parametric Equalizer)
(Low) ..... Frequency: 40/80/100/160 Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB
(Mid) ..... Frequency: 200/500/1k/2k Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB
(High) ..... Frequency: 3.15k/8k/10k/12.5k Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB
Loudness contour
(Low) ..... +3.5 dB (100 Hz), +3 dB (10 kHz)
(Mid) ..... +10 dB (100 Hz), +6.5 dB (10 kHz)
(High) ..... +11 dB (100 Hz), +11 dB (10 kHz)
(volume: –30 dB)
HPF
Frequency ..... 50/80/125 Hz
Slope ..... –12 dB/oct.
Subwoofer output
Frequency ..... 50/80/125 Hz
Slope ..... –18 dB/oct.
Gain ..... ±12 dB

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format ..... Sampling frequency: 44.1 kHz
Number of quantization bits: 16; linear
Frequency characteristics ..... 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IHF-A network)
Dynamic range ..... 90 dB (1 kHz)
Number of channels ..... 2 (stereo)

FM tuner

Frequency range ..... 87.9 – 107.9 MHz
Usable sensitivity ..... 10 dBf
(1.0 µV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity .... 15 dBf (1.7 µV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IHF-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)
Selectivity ..... 70 dB (2ACA)
Three-signal intermodulation
(desired signal level) ..... 30 dBf
(two undesired signal level: 100 dBf)

AM tuner

Frequency range ..... 530 – 1,710 kHz
Usable sensitivity ..... 18 µV (S/N: 20 dB)
Selectivity ..... 50 dB (±10 kHz)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.

● DEH-P7050/ES

General

Power source ..... 14.4 V DC (10.8 – 15.1 V allowable)
Grounding system ..... Negative type
Max. current consumption ..... 10.0 A
Dimensions
(DIN) (chassis) ..... 178 (W) × 50 (H) × 157 (D) mm
(nose) ..... 188 (W) × 58 (H) × 18 (D) mm
(D) (chassis) ..... 178 (W) × 50 (H) × 162 (D) mm
(nose) ..... 170 (W) × 46 (H) × 13 (D) mm
Weight ..... 1.6 kg

Amplifier

Continuous power output is 22 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output ..... 45 W × 4
45 W × 2 ch/4 Ω + 70 W × 1 ch/2 Ω (for Subwoofer)
Load impedance
..... 4 Ω (4 – 8 Ω [2 Ω for 1 ch] allowable)
Preout maximum output level/
output impedance ..... 4.0 V/100 Ω
Equalizer (3-Band Parametric Equalizer)
(Low) ..... Frequency: 40/80/100/160 Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB
(Mid) ..... Frequency: 200/500/1k/2k Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB
(High) ..... Frequency: 3.15k/8k/10k/12.5k Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB
Loudness contour
(Low) .....+3.5 dB (100 Hz), +3 dB (10 kHz)
(Mid) .....+10 dB (100 Hz), +6.5 dB (10 kHz)
(High) .....+11 dB (100 Hz), +11 dB (10 kHz)
(volume: –30 dB)
HPF
Frequency ..... 50/80/125 Hz
Slope ..... –12 dB/oct.
Subwoofer output
Frequency ..... 50/80/125 Hz
Slope ..... –18 dB/oct.
Level ..... ±12 dB

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format ..... Sampling frequency: 44.1 kHz
Number of quantization bits: 16; linear
Frequency characteristics ..... 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IEC-A network)
Dynamic range ..... 90 dB (1 kHz)
Number of channels ..... 2 (stereo)

FM tuner

Frequency range ..... 87.5 – 108 MHz
Usable sensitivity
..... 10 dBf (1.0 µV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity .... 15 dBf (1.7 µV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IEC-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range ..... 531 – 1,602 kHz (9 kHz)
530 – 1,710 kHz (10 kHz)
Usable sensitivity ..... 18 µV (S/N: 20 dB)
Selectivity ..... 50 dB (±9 kHz)
50 dB (±10 kHz)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.

Service Manual

ORDER NO.
CRT2300

CD MECHANISM MODULE

CX-916

- **This service manual describes the operation of the CD mechanism incorporated in models listed in the table below.**
- **When performing repairs use this manual together with the specific manual for model under repair.**

Model	Service Manual	CD Mechanism Module	Mechanism Unit
DEH-P400/X1N/UC DEH-P4000/X1N/UC DEH-P4050/X1N/ES	CRT2308	CXK5200	CXB3100
DEH-P3000R/X1N/EW	CRT2309	CXK5200	CXB3100
DEH-P200/X1N/UC DEH-P300/X1N/UC DEH-P3000/X1N/UC	CRT2310	CXK5200	CXB3100
DEH-P20/X1N/UC DEH-P2000/X1N/UC DEH-P2050/X1N/ES	CRT2311	CXK5200	CXB3100
DEH-2000R/X1N/EW DEH-2020R/X1N/GR DEH-2030R/X1N/EW	CRT2312	CXK5200	CXB3100
DEH-10/X1N/UC DEH-1000/X1N/UC DEH-1050/X1N/ES	CRT2313	CXK5200	CXB3100

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MC-Service

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS SERVICE INC. P.O.Box 1760, Long Beach, CA 90801-1760 U.S.A.
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra Road, #04-01, Singapore 159936

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K-FZA. DEC. 1998 Printed in Japan

1. CIRCUIT DESCRIPTIONS

The LSI (UPD63710GC) used on this unit comprises five main blocks ; the pre-amp section, servo, signal processor, DAC and CD text decoder (not used on this model). It also equips with nine automatic adjustment functions.

1.1 PRE-AMP SECTION

This section processes the pickup output signals to create the signals for the servo, demodulator and control.

The pickup output signals are I-V converted by the pre-amp with the built-in photo-detector in the pickup, then added by the RF amp to obtain RF, FE, TE, TE zero cross and other signals.

This pre-amp section is built in the servo LSI UPD63710GC (IC201). The following describes function of each section.

Since this system has a single power supply (+5V), the reference voltage for this LSI and pickup are set to REFO (2.5V). The REFO is obtained by passing the REFOUT from the LSI through the buffer amplifier. The REFO is output from Pin 89 of this LSI. All measurements are done using this REFO as reference.

Note : During the measurement, do not try to short the REFO and GND.

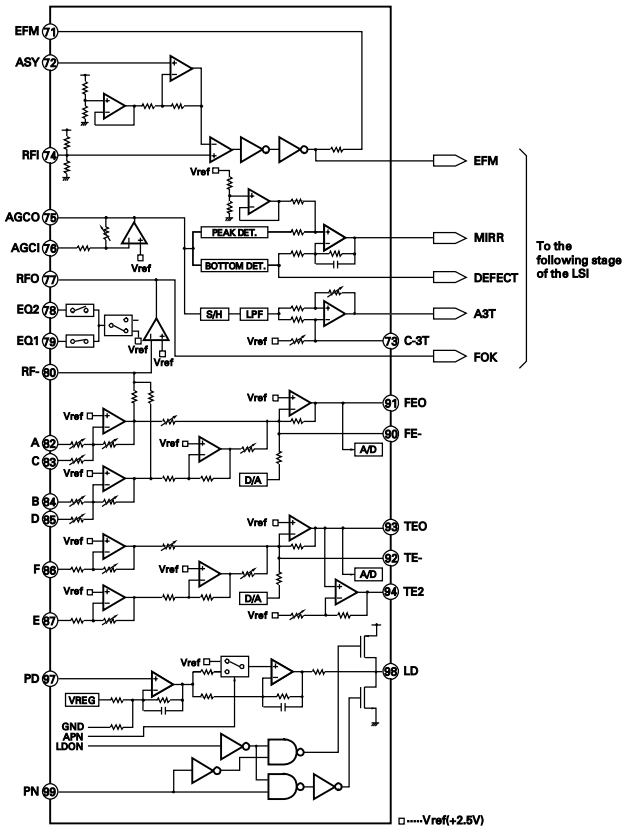

Fig.1 : BLOCK DIAGRAM OF BUILT-IN RF AMPLIFIER

1) APC Circuit (Automatic Power Control)

When the laser diode is driven with constant current, the optical output has large negative temperature characteristics. Thus, the current must be controlled from the monitor diode so that the output may be constant. APC circuit is for it. The LD current is obtained by measuring the voltage between LD1 and V+5. The value of this current is about 35mA.

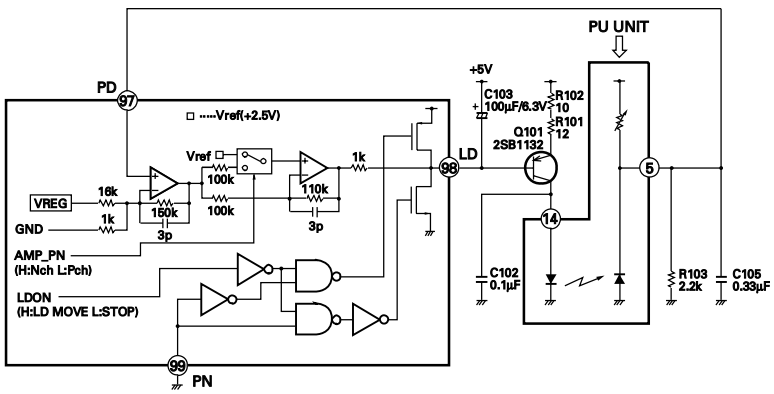

Fig.2 : APC CIRCUIT

2) RF Amplifier and RFAGC Amplifier

The photo-detector outputs (A + C) and (B + D) are added, amplified and equalized on this LSI and then output to the RFI terminal as the RF signal. (The eye pattern can be checked by this signal.)

The RFI voltage low frequency component is :

$$RFI = (A + B + C + D) \times 3.2$$

RFI is used on the FOK generator circuit and RF offset adjusting circuit.

R214 is an offset resistor for maintaining the bottom reference voltage of the RFI signal at 1.5 VDC. The D/A output used for the RF offset adjustment (to be described later) is entered via this resistor.

After the RFI signal from Pin 77 is externally AC coupled, entered to Pin 76 again, then amplified on the RFAGC amplifier to obtain the RFO signal.

The RFAGC adjustment function (to be described later) built-in the LSI is used for switching feedback gain of the RFAGC amplifier so that the RFO output may go to 1.5 ± 0.3Vpp.

The RFO signal is used for the EFM, DFCT, MIRR and RFAGC adjustment circuits.

3) RFOK Circuit

This circuit generates the signal that is used for indicating the timing of closing the focus or state of the focus close currently being played. This signal is output from Pin 4 as the FOK signal. It goes high when the focus close and in-play.

The RFOK signal is generated by holding DC level of the RFI at its peak with the succeeding digital section, then comparing it at a specific threshold level. Thus, the RFOK signal goes high even if the pit is absent. It indicates that the focus close can take place on the disc mirror surface, too.

This signal is also supplied to the micro computer via the low pass filter as the FOK signal and used for the protection and the RF amplifier gain switching.

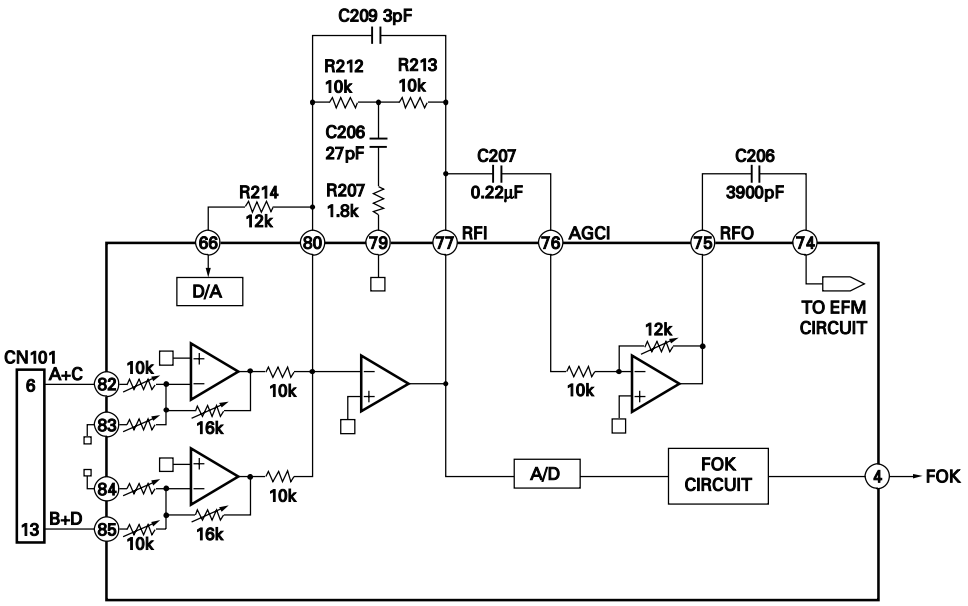

Fig.3 : RFAMP, RFAGC AND FOK CIRCUIT

4) Focus Error Amplifier

The photo-detector outputs (A + C) and (B + D) are passed through a differential amplifier and an error amplifier, and then (A + C – B – D) is output from Pin 91 as the FE signal. The FE voltage low frequency component is :

$$FE = (A + C - B - D) \times \frac{16k}{10k} \times \frac{(80k//300k)}{20k}$$

$$= (A + C - B - D) \times 5$$

Using REFO as the reference, an S-curve of approximately 1.5 Vpp is obtained for the FE output. The final-stage amplifier cutoff frequency is 11.4 kHz.

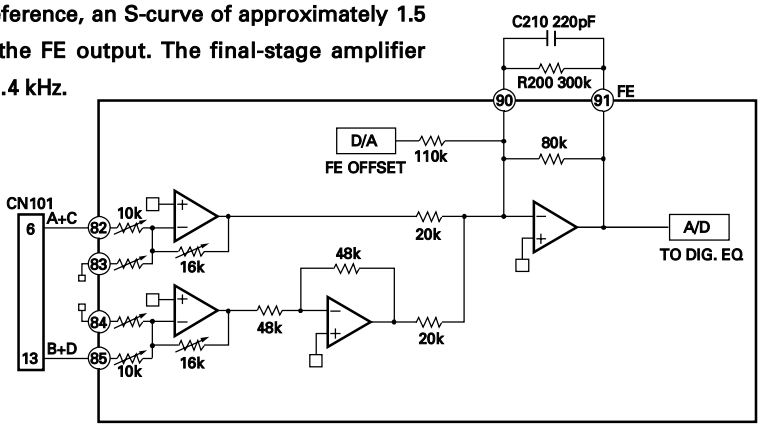

Fig.4 : FOCUS ERROR AMPLIFIER

5) Tracking Error Amplifier

The photo-detector outputs E and F are passed through a differential amplifier and an error amplifier, and then (E – F) is output from Pin 93 as the TE signal. The TE voltage low frequency component is :

$$TE = (E - F) \times \frac{224k}{(56k+27k)} \times \frac{80k}{38k}$$

$$= (E - F) \times 5.7 \text{ (Effective LSI output is 5.0).}$$

Using REFO as the reference, the TE waveform of approximately 1.3 Vpp is obtained for the TE output. The final-stage amplifier cutoff frequency is 20 kHz.

6) Tracking Zero Crossing Amplifier

TEC signal (the tracking zero crossing signal) is obtained by multiplying the TE signal four times. It is used for locating the zero crossing points of the tracking error. The zero cross point detection is done for the following two reasons :

① To count tracks for carriage moves and track jumps.

② To detect the direction in which the lens is moving when the tracking is closed (it is used on the tracking brake circuit to be described later).

The TEC signal frequency range is 300 Hz to 20 kHz.

TEC voltage = TE level × 4

Theoretical TEC level is 5.2V. The signal exceeds D-range of the operational amplifier and thus is clipped. It, however, can be ignored since this signal is used by the servo LSI only at the zero crossing point.

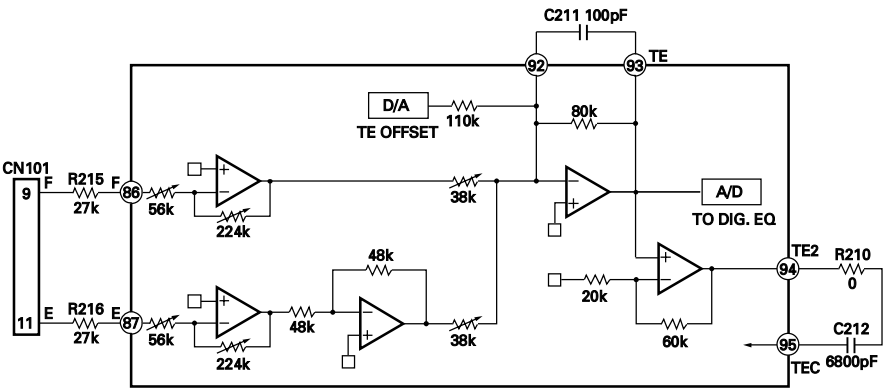

Fig.5 TRACKING ERROR AMPLIFIER AND TRACKING ZERO CROSSING AMPLIFIER

7) DFCT (Defect) Circuit

The DFCT signal is used for detecting defects on the mirrored disc surface. It allows monitoring from the HOLD pin (Pin 2). It goes high when defects are found on the mirrored surface.

The DFCT signal is generated by comparing the RF amplified signal (which is obtained by bottom holding the RFO signal) at a specific threshold level by the succeeding digital section.

Stains or scratches on the disc can constitute the defects on the mirrored disc surface. Thus, as long as the DFCT signal remains high in the LSI, the focus and tracking servo drives are held in the current state so that a better defect prevention may be ensured.

8) 3TOUT Circuit

The 3TOUT signal is generated by entering disturbance to the focus servo loop, comparing phase of fluctuations of the RF signal 3T component against that of the FE signal at that time, then converting the signal to DC level. This signal is used for adjusting bias of the FE signal (to be described later). This signal is not output from the LSI, thus its monitoring is not available.

9) MIRR (Mirror) Circuit

The MIRR signal shows the on track and off track data, and is output from Pin 3.

When the laser beam is

On track : MIRR = "L"

Off track : MIRR = "H"

This signal is used on the brake circuit (to be described later) and also as the trigger to turn on track counting when jumping take place.

The MIRR signal is supplied to the micro computer, too, for the protection purpose.

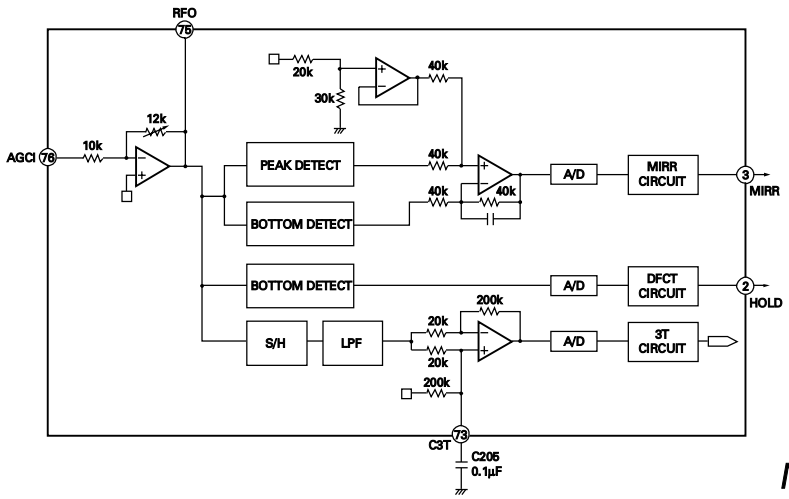

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Fig.6 : DFCT, MIRR AND 3T DETECTION CIRCUIT

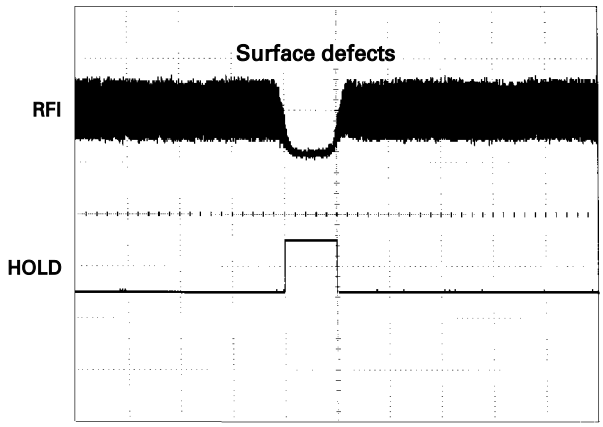


Fig.7 : HOLD OUTPUT WAVEFORM
(When surface defects are present)

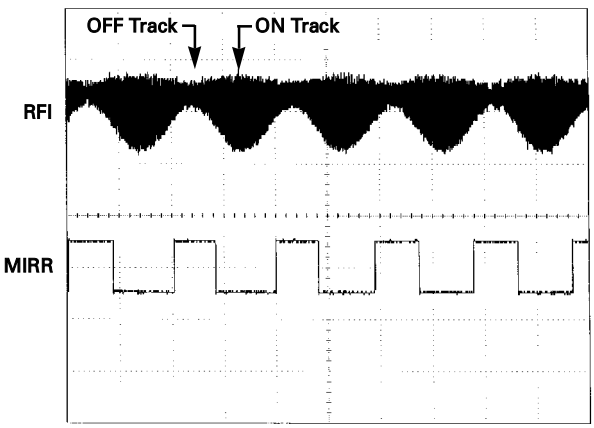


Fig.8 : MIRR OUTPUT WAVEFORM
(When an access is made)

10) EFM Circuit

This circuit is used for converting the RF signal to digital signal consisting of "0" and "1". The RFO signal from Pin 75 is externally AC coupled, entered to Pin 74, then applied to the EFM circuit.

Loss of the RF signal due to scratches or stains on the disc, or vertical asymmetry of the RF due to variations in the discs manufactured can't be eliminated by AC coupling alone. This circuit, therefore, controls the reference voltage ASY on the EFM comparator by use of the fact that "0" and "1" appear fifty fifty in the EFM signal. By this arrangement, the comparate level is constantly maintained at almost center of the RFO signal level. The reference voltage ASY is generated when the EFM comparator output is passed through the low pass filter. The EFM signal is output from Pin 71. It is a 2.5 Vp-p amplitude signal centering on REFO.

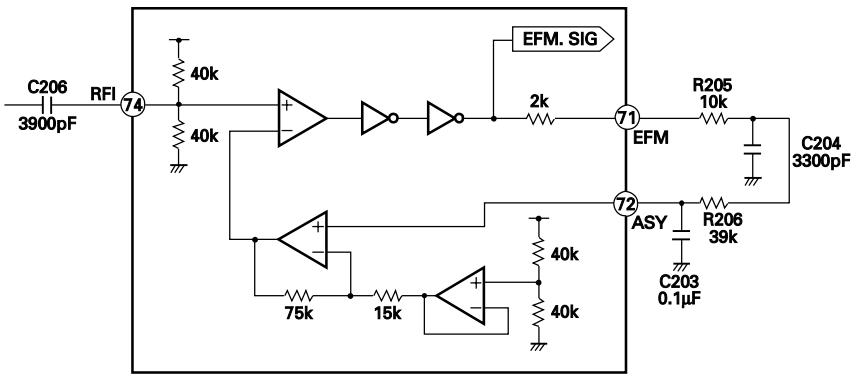


Fig.9 : EFM CIRCUIT

1.2 SERVO SECTION (UPD63710GC : IC201)

The servo section controls the operations such as error signal equalizing, in focus, track jump and carriage move. The DSP is the signal processing section used for data decoding, error correction and interpolation processing, among others.

This circuit implements analog to digital conversion of the FE and TE signals generated on the pre-amplifier, then outputs them through the servo block as the drive signal used on the focus, tracking and carriage system. The EFM signal is decoded on the signal processing section and finally output via the D/A converter as the audio signal. The decoding process also generates the spindle servo error signals which is fed to the spindle servo block to generate the spindle drive signal.

The focus, tracking, carriage and spindle drive signals are then amplified on the driver IC BA5985FM (IC301) and fed to respective actuators and motors.

1) Focus Servo System

The focus servo main equalizer is consisted of the digital equalizer. Fig.10 shows the focus servo block diagram.

When implementing the focus close on the focus servo system, the lens must be brought within the in-focus range. Therefore, the lens is moved up and down according to the triangular focus search voltage to find the focus point. During this time, the spindle motor is kicked and kept rotating as a set speed.

The servo LSI monitors the FE and RFOK signals and automatically carries out the focus close at an appropriate point.

The focus closing is carried out when the following three conditions are met :

① The lens approaches the disc from its current position.

② RFOK = "H"

③ The FZC signal is latched at high after it has once crossed the threshold set on the FZD register (Edge of the FZD).

As the result, the FE (= REFO) is forced to low.

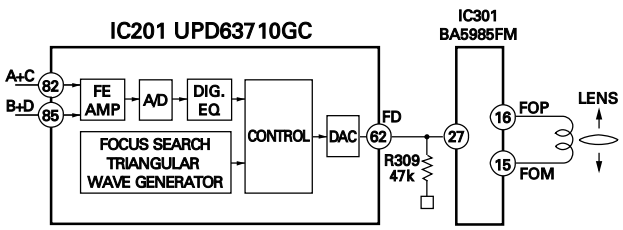


Fig.10 : FOCUS SERVO BLOCK DIAGRAM

When the above conditions are all met and the focus is closed, the XSI pin goes to low from the current high, then 40 ms later, the microcomputer begins to monitor the RFOK signal after it that has been passed through the low pass filter.

When the RFOK signal is recognized as low, the micro computer carries out various actions including protection.

Fig.11 a series of operations carried out relevant to the focus close (the figure shows the case where focus close is not available).

You can check the S-curve, search voltage and actual lens behavior by selecting the Display 01 for the focus mode select in the test mode, and then pressing the focus close button.

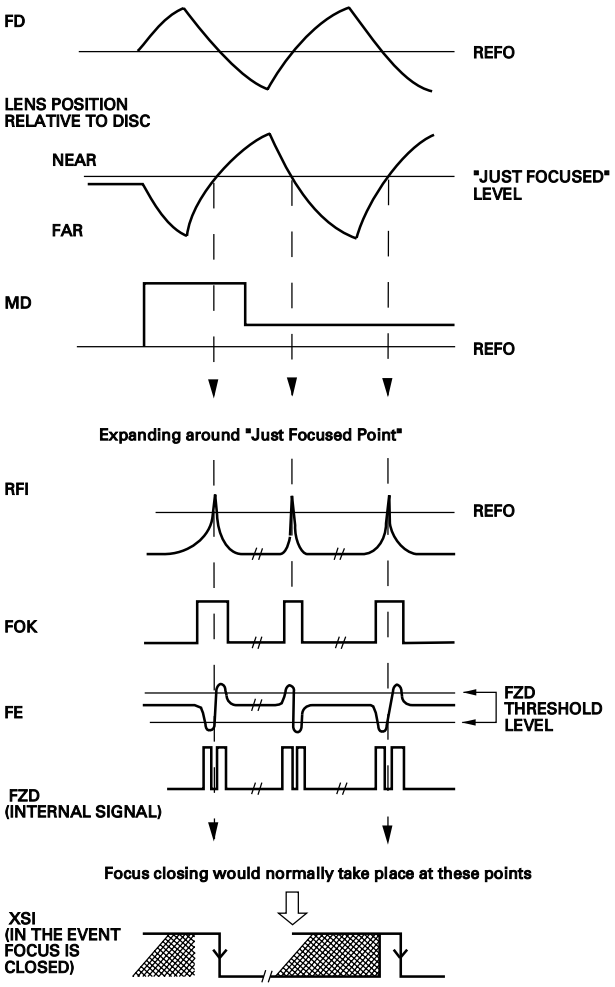


Fig.11 : FOCUS CLOSE SEQUENCE

2) Tracking Servo System

The digital equalizer is employed for the main equalizer on the tracking servo. Fig.12 shows the tracking servo block diagram.

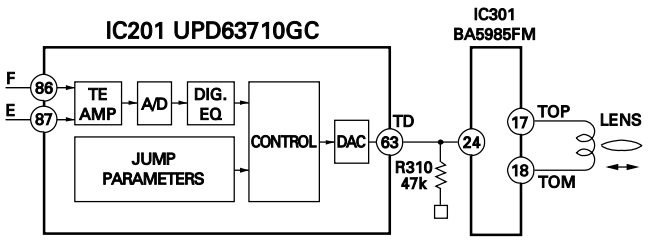


Fig.12 : TRACKING SERVO BLOCK DIAGRAM

a) Track jump

When the LSI receives the track jump command from the microcomputer, the operation is carried out automatically by the auto sequence function of the LSI. This system has five types of track jumps used for the search : 1, 4, 10, 32 and 32 × 3. In the test mode, in addition to three jumps (1, 32 and 32 × 3), move of the carriage can be check by mode selection. For track jumps, the microcomputer sets almost half of tracks (5 tracks for 10 tracks, for instance) and counts the set number of tracks using the TEC signals. When the microcomputer has counted the set number of tracks, it outputs the brake pulse for a fixed period of time (duration can be specified with the command) to stop the lens. In this way, the tracking is closed and normal play is continued.

To improve the servo loop retracting performance just after the track jump, the brake circuit is turned on for 50 ms after the brake pulse has been terminated to increase gain of the tracking servo.

Fast forward and reverse operations are realized by through consecutive signal track jumps. The speed is about 10 times as fast as that in the normal mode.

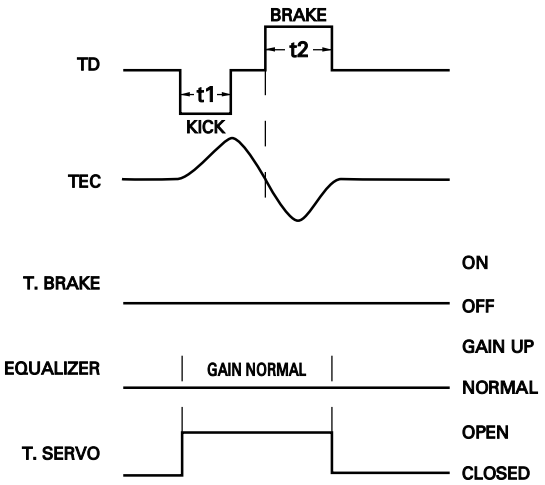


Fig.13 : SINGLE TRACK JUMP

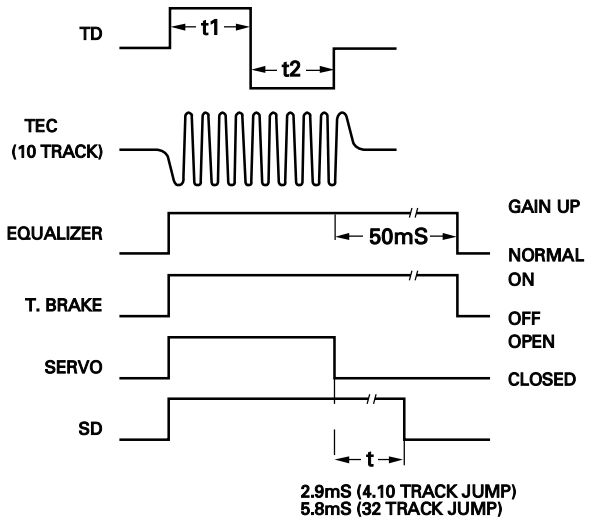
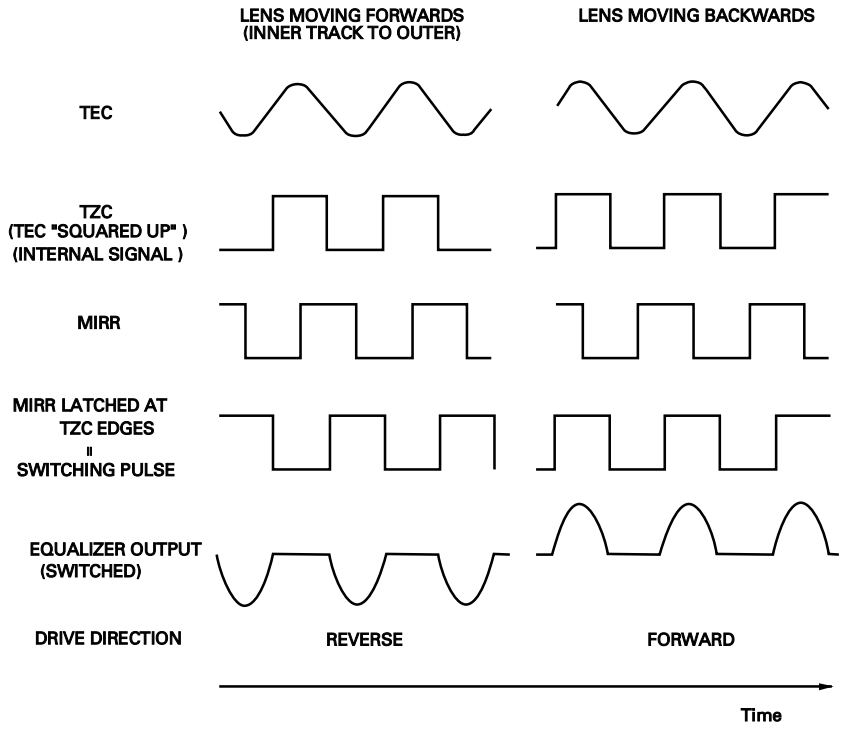


Fig.14 : MULTI-TRACK JUMP

b) Brake Circuit

The servo retracting performance can be deteriorate during the setup or track jump operation. In this connection, the brake circuit is used to ensure steady retract of the tracking servo. The brake circuit detects in which direction the lens is moving, then slows down its move by outputting the drive signal that moves the lens into the opposite direction alone. Track slippage direction is determined by referencing the TEC and MIRR signals and their phase.



Note : Equalizer output assumed to hava same phase as TEC.

Fig.15 : TRACKING BRAKE CIRCUIT

3) Carriage Servo System

The carriage servo supplies the tracking equalizer's low-frequency component (lens position data) output to the carriage equalizer, then, after providing a fixed amount of gain to it, outputs the drive signal from the LSI. This signal is then applied to the carriage motor via the driver IC.

When the lens offset reaches a certain level during play, the entire pickup must be moved into the forward direction. Therefore, the equalizer gain is set to the level that allows to generate a voltage higher than the carriage motor starting voltage. In actual operations, a certain threshold level is set for the equalizer output by the servo LSI so that the drive voltage may be output from the servo LSI only when the equalizer output exceeds the threshold level. This arrangement helps reducing power consumption. Also, due to disc eccentricity or other factors, the equalizer output may cross the threshold level a number of times. In this case, the drive voltage output from the LSI will have pulse-like waveform.

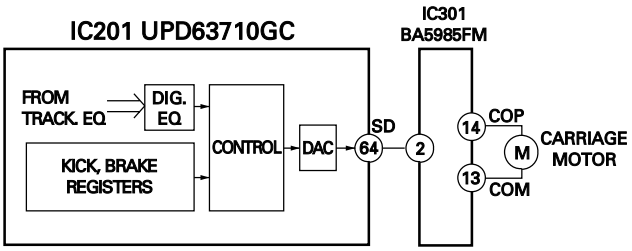


Fig.16 : CARRIAGE SERVO BLOCK DIAGRAM

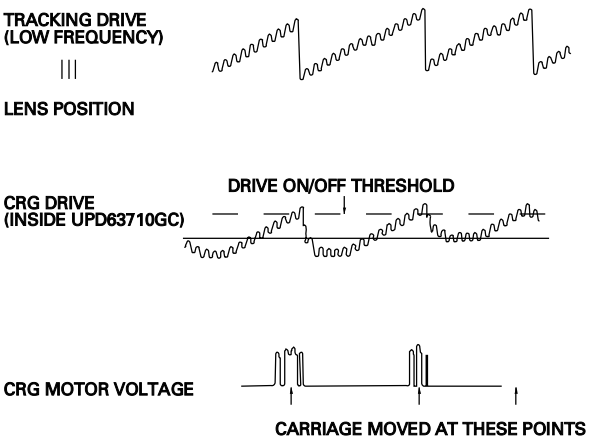


Fig.17 : CARRIAGE SIGNAL WAVEFORM

4) Spindle Servo System

The spindle servo has the following modes.

① Kick :

This mode is used for accelerating the disc rotation during setup.

② Offset :

(a) After the kick is over in the setup, this mode is turned on until changing to rough servo mode.

(b) When focus is lost during play, this mode is turned on until the focus is restored.

Both of the above are used for maintaining the disc rotation rate near to the specified rate.

③ Applicable servo :

The CLV servo mode is turned on for the normal operations.

In the EFM demodulation block, the frame sync signal and internal counter output signal are sampled for every WFCK/16 and a signal is produced for indicating whether or not they are matching.

They are determined to be asynchronous only when this signal fails to match 8 times in succession. In all other cases, above two signals are assumed to be synchronous. In the applicable servo mode, the retracting servo is automatically selected if the two signals are synchronous. If not, the regular servo is automatically selected.

④ Brake :

This mode is turned on when stopping the spindle motor.

The microcomputer outputs the brake voltage through the servo LSI. The LSI monitors the EFM waveform and, if its longest pattern exceeds a certain interval (if the rotation is sufficiently slow), the flag is set the LSI and the microcomputer turns off the brake voltage. When the flag is not up within a specified period time, the microcomputer switches the mode from the brake to the stop mode, and maintains this mode for a fixed period of time. If this stop mode is continued for a fixed period of time, the disc will be ejected.

⑤ Stop :

This mode is used for powering on the system and the eject operation. When this mode is turned on, voltage across the spindle motor is 0V.

⑥ Rough servo :

This mode is used for when the carriage feed (carriage mode for the long search, etc.) is turned on. The linear speed is calculated from the EFM waveform and high or low level is entered to the spindle equalizer. In the test mode, this mode is also used for the grating check.

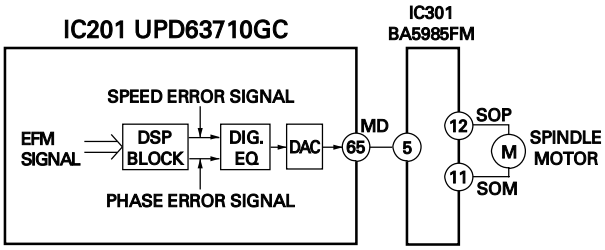


Fig.18 : SPINDLE SERVO MOTOR BLOCK DIAGRAM

1.3 AUTOMATIC ADJUSTMENT FUNCTIONS

Every circuit adjustment on the CD-LSI of this system is automated.
Every circuit adjustment is automatically implemented when the disc is inserted or the CD mode is selected from the source key. The following describes how the adjustments are executed.

1) FZD Cancel Setting

This setting is used for executing the focus close operation without fail.
When power is turned on, the FE offset level is read and a voltage opposite to this offset value is written to the CRAM on the IC to cancel the offset. In this manner, the FZD threshold level can be set to a constant value (+240mV), thereby ensuring to meet one of the requirements for the IC to execute the focus close that "the FZD signal is latched at high".

2) Automatic Adjustment of TE, FE and RF Offset

Using REFO as the reference, this function adjusts the pre-amp TE, FE and RF offsets to the respective target value when power is turned on (targets values of the TE, FE and RF are 0, 0 and –1V, respectively).
The following is the adjustment procedure :

(1) Respective offset (LD off) is read by the microcomputer via the servo LSI.
(2) The microcomputer calculates the voltages to be corrected from the read values, then sets them to the specified field.

3) Automatic Adjustment of Tracking Balance (T. BAL)

This adjustment is used for eliminating differences between the pickup E and F channels outputs by adjusting gain of the amplifier on the LSI. In the actual operation, the TE waveform is adjusted so that it may be vertically symmetric with REFO.
The following is the adjustment procedure :

(1) Make sure the focus close is complete.
(2) Kick the lens in the radial direction to generate the TE waveform.
(3) At this time, the microcomputer reads the TE signal offset value (via the servo LSI) being calculated by the LSI.
(4) The microcomputer determines if the read offset value is positive, negative or zero.
If the offset value = 0, the adjustment is terminated.
If the offset value = A positive or negative value, gain of the E and F channels amplifiers are modified according the predetermined rule.

Then above steps (2) through (4) are repeated until the "Offset value = 0" or "Specified limit count" is reached.

4) Automatic Adjustment of FE Bias

This adjustment is intended at maximizing the RFI level by optimizing the focus point in-play. This adjustment utilizes the phase difference between the RF waveform 3T level and the focus error signal when disturbance is applied.
Since disturbance is applied to the focus loop, this adjustment is designed to take place in the same timing as the auto gain control (to be described later).
The following is the adjustment procedure :

(1) Disturbance is injected to the focus loop by the command from the microcomputer (within the servo LSI).
(2) The LSI detects fluctuation of the RF signal 3T component level.
(3) The LSI determines relationship between fluctuation of the 3T component and the injected disturbance to detect magnitude and direction of the off-focus introduced.
(4) The microcomputer reads the detected results from the LSI.
(5) The microcomputer calculates necessary correction, then hands the calculated value to the bias adjustment term set on the LSI.

This adjustment is repeated several times, as it is so with the auto gain control, to ensure higher accuracy.

5) Focus and Tracking Automatic Gain Control

This function is used for implementing automatic control of the focus and tracking loop gain.

The following is the adjustment procedure :

(1) Inject disturbance to the servo loop.

(2) Extract the error signal (FE and TE) generated at when the disturbance is applied to obtain the signals G1 and G2 via the B.P.F.

(3) The microcomputer reads the G1 and G2 signals via the LSI.

(4) Based on the necessary correction calculated by the microcomputer, the LSI performs the loop gain adjustment.

Above adjustments are repeated several times to ensure higher adjustment accuracy.

6) Automatic RF Level Adjustment (RFAGC)

This adjustment is used for implementing intended signal transmission successfully by adjusting unevenness of the RF signal (RFO) levels, that results from disc and machine relevant factors, to a target value. The adjustment is actually done by varying gain of the amplifier provided between the RFI and RFO.

The following is the adjustment procedure :

(1) Using the command, the microcomputer reads the output from the RF level detection circuit on the servo LSI.

(2) Based on the read value, the microcomputer calculates an amplifier gain that will produce the target RFO level.

(3) The microcomputer sends the corresponding command to the servo LSI so that the above gain value may be set.

This adjustment takes place at the following timing :

- When the focus close alone is completed during the setup process.
- Just before the setup is completed (just before the play takes place).
- After the off-focus has been corrected during the play.

7) Adjustment of Pre-Amp Stage Gain

It is used for adjusting the entire RFAMP (FE, TE and RF amplifiers) to +6dB or +12dB depending on given gain level when reflected light from the disc is significantly below the required level due to stained lens. This phenomena can be noticed when playing back the CD-RW.

The following is the adjustment procedure :

When reflected light from disc is judged to be significantly below the required level during the setup, set the entire RFAMP to +6dB or +12dB. In this case, if the gain is modified, the setup have to be repeated from the first step.

Through the adjustment, if you judged the play becomes available by setting the entire RFAMP to +6dB, +6dB should be selected for the setup next time on.

See the figure below :

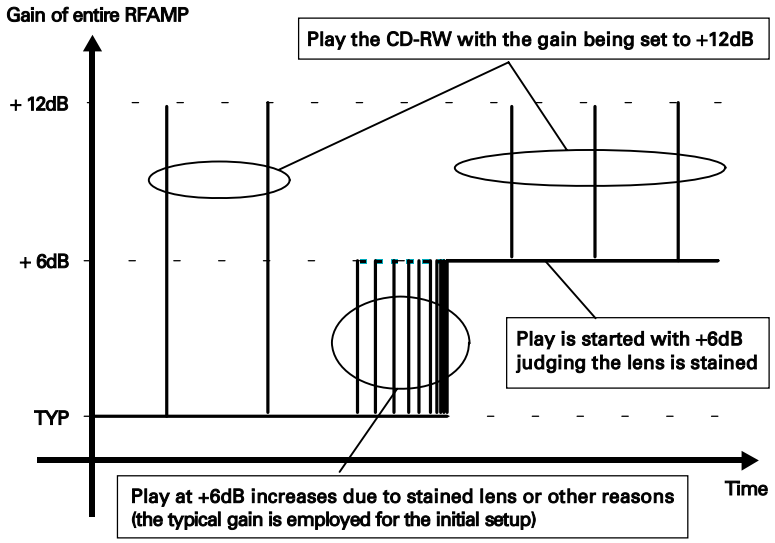

Gain of entire RFAMP
Play the CD-RW with the gain being set to +12dB
+ 12dB
+ 6dB
TYP
Play is started with +6dB judging the lens is stained
Play at +6dB increases due to stained lens or other reasons (the typical gain is employed for the initial setup)
Time

Fig.19 : CONCEPTUAL DIAGRAM OF PRE-AMP GAIN ADJUSTMENT

8) Initial Adjusting Values

All the automatic adjustments are implemented using the previous adjustment values as the initial values unless the microcomputer power (the backup power) is not turned off (though there are some exceptions).
When the backup is turned off, automatic adjustment is executed based on the initial values rather than the previous adjustment values.

9) Displaying Coefficients After Adjustment

You can display and check results of some automatic adjustments (FE and RF offset, FZD cancel and F / T / RFAGC) from the test mode. The following coefficients are displayed in each automatic adjustment :

(1) FE and RF offset and FZD cancel

Reference value = 32 (The coefficient of 32 indicates that no adjustment was required).

The results are displayed in multiples of approximately 40 mV.

An example : When FZD cancel coefficient = 35

35 – 32 = 3

3 × 40 mV = 120 mV

Since the corrected value is approximately +120 mV, the FE offset before adjustment was –120 mV.

(2) F and T gain adjustment

Reference value = Focus/Tracking = 20

A coefficient displayed indicates an amount of adjustment conducted on the reference value.

An example : When AGC coefficient = 40

40/20 = Overall gain has bee doubled (+6dB). (The original loop gain of 1/2 has been doubled to have the targeted overall gain.)

(3) RF level adjustment (RFAGC)

Reference value = 8

Coefficient = 9 to 15 ····· The direction in which the RF level is increased (the gain is increased).

Coefficient = 7 to 0 ····· The direction in which the RF level is decreased (the gain is decreased).

Incrementing or decreasing the coefficient by "1" varies the gain by 0.7 to 1dB.

Maximum gain = Typically +6.5dB. Coefficient at this time is 15.

Minimum gain = Typically –6.0dB. Coefficient at this time is 0.

1.4 POWER SUPPLY AND LOADING SECTION

The power supply of the system uses VD (8.3V) from the mother board. VD is fed to 5 channel CD driver IC, 5V Reg IC and disc detection LED.

The microcomputer turns on or off the CD driver and the 5V using "CONT" and "CD5VON", respectively. The loading drive is turned on or off by the input signals "CDEJET" and "CDLOAD". No control terminal is provided for turning the loading drive on or off.

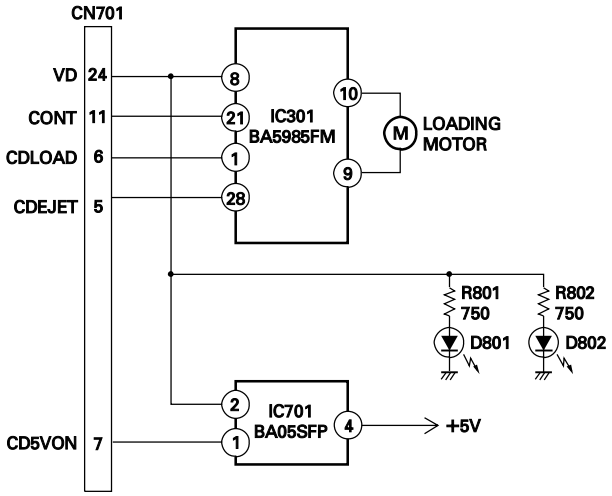
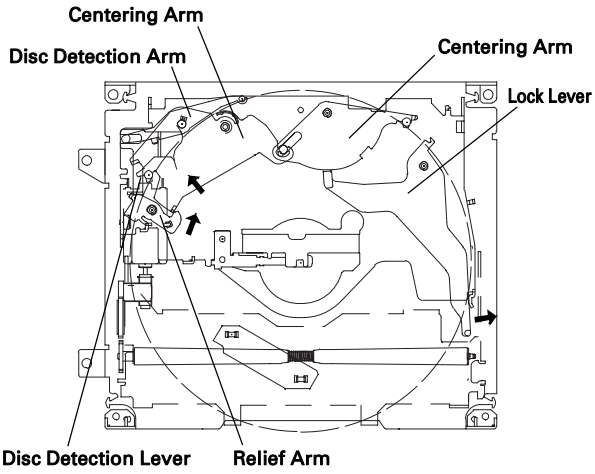


Fig.20 : POWER SUPPLY AND LOADING SECTION

2. MECHANISM DESCRIPTIONS

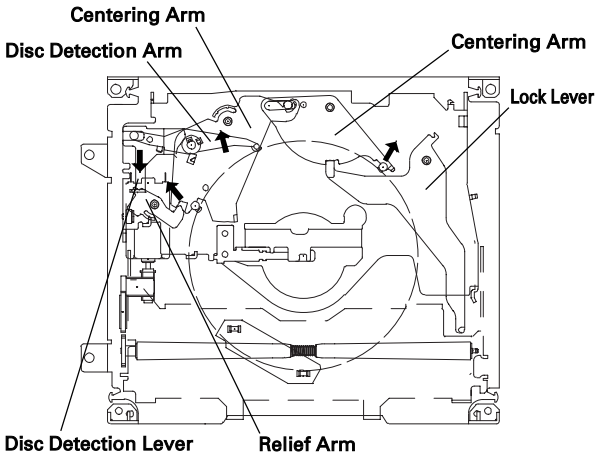
● Loading Operation (when a 12 cm disc is used)

1. Insert a 12 cm disc (the sensor turns on the motor revolution).
2. The disc pushes the Lock Lever in, thereby resetting the lock currently applied to the Centering Arms.
3. The disc further pushes the Centering Arms in.
4. The right side and left side arms are engaged to perform centering of the disc.
5. The disc pushes the Disc Detection Arm in, thereby pushing the Disc Detection Lever forward.
6. Clamping action retracts the Disc Detection Lever toward forward side, thereby rotating the Relief Arm.
7. The Relief Arm further pushes the Centering Arm in, thus detaching it from the disc.



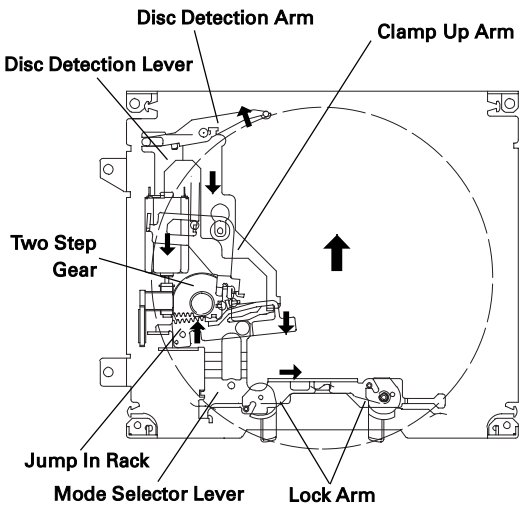
● Loading Operation (when a 8 cm disc is used)

1. Insert an 8 cm disc (the sensor turns on the motor revolution).
2. The disc does not contact against the Lock Lever, thus centering of the disc is performed by the Centering Arm being locked.
3. When the right side slot is used, the lock currently applied to the Centering Arm remains turned on even if the disc may touch the Lock Lever because the disc leaves the lever before it reaches the Centering Arm.
4. Succeeding procedures are the same as that for 12 cm discs.



● Clamping Operation

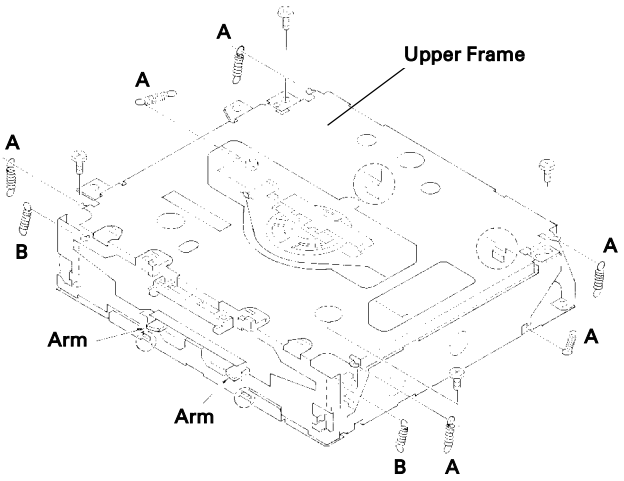
1. Insert a disc.
2. The Detection Arm pushed forward by the Detection Lever turns on rotation of the Jump In Rack.
3. The Jump In Rack then engages with the Two Step Gear and moves toward right.
4. At the same time, the Mode Selector Lever connected to the Jump In Rack starts moving toward right, thereby rotating the Lock Arm and resetting the mechanical lock. The Clamp Up Arm too is rotated by the above action and, thus, the Clamp Up Arm now being lifted by shape of the cam of the Clamp Arm is lowered.
   And, the Guide Arm is also moved down because of shape of the cam of the Mode Selector Lever.
5. By use of the cam shape, the Jump In Rack being moved toward right retracts the Disc Detection Lever in forward direction, thereby turning on rotation of the Relief Arm.



3. DISASSEMBLY

● Removing the Upper Frame

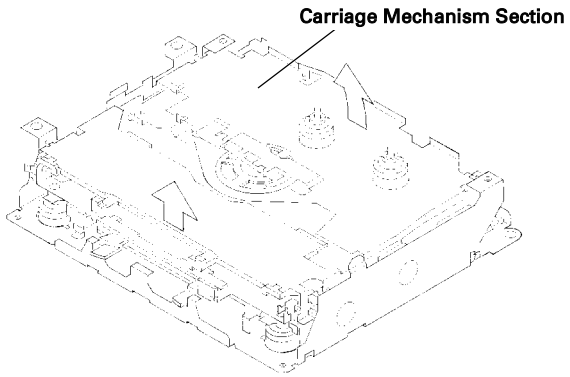
1. Remove six Springs A, two Springs B and four Screws.
2. Remove two Tabs situated on rear side of the Upper Frame, remove two Arms on the front side, then remove two Tabs on the front side.



● Removing the Carriage Mechanism

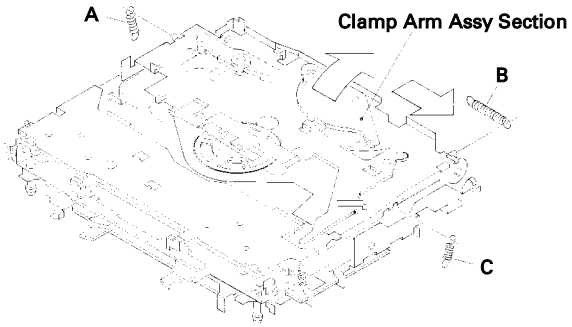
1. Disengage the Carriage Mechanism from the two dampers situated in the front side by driving it up, then disengage and remove the mechanism from the two dampers by driving it up aslant into front side direction.

Note : When assembling the Carriage Mechanism, coat the dampers with alcohol prior to the assembly.



● Removing the Clamp Arm Assy

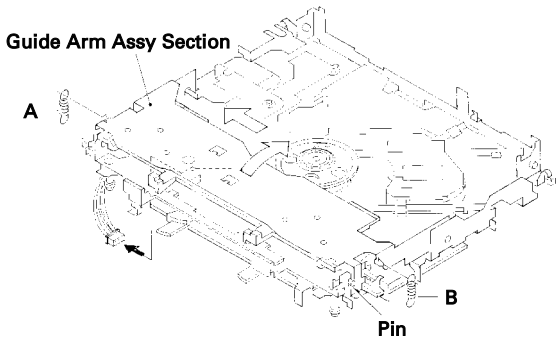
1. Remove a Spring A, a B and a Spring C.
2. Drive the Clamp Arm Assy up into rear side direction, then disengage the arm from its current position Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward right side to remove it.



● Removing the Guide Arm Assy

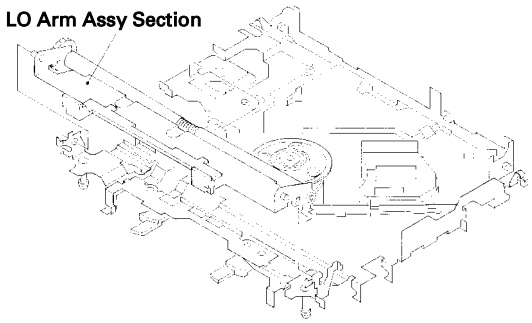
1. Remove a connector, a spring A and B
2. Drive the Guide Arm Assy up aslant into rear side direction, then remove it from a Pin. Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward left side to remove it.

Note : When assembling the guide arm assembly, route the cord inside the assembly. In this operation, care must be exercised so that cord may be caught by the gear.



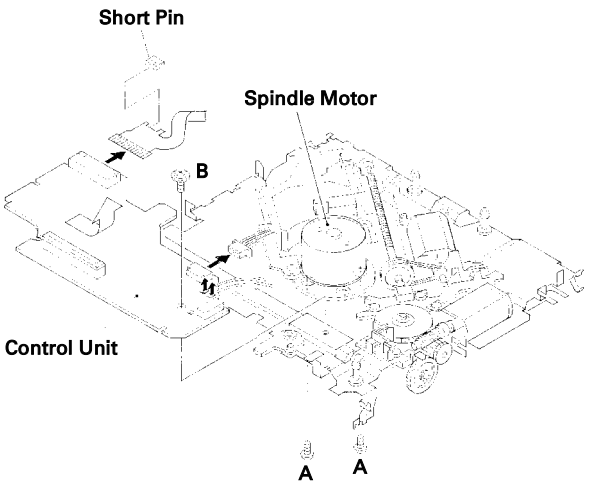
● Removing the LO Arm Assy

1. Remove two Pins to dismount the LO Arm Assy.



● Removing the Control Unit and the Spindle Motor

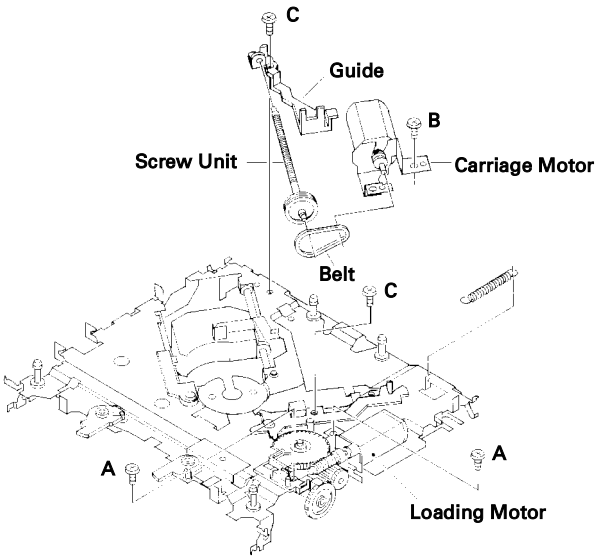
1. Remove from the connector after mounting the short pin on the flexible PCB of the pickup unit.
2. Remove two Soldered joints, then remove two Screws A.
3. Remove two connectors and a Screw B.
4. Disengage the Control Unit from two Tabs, then dismount the unit by sliding it toward left.
5. Dismount the Spindle Motor.



● Removing the Loading Motor and Carriage Motor

1. Remove the Spring and two Screws A.
2. Dismount the Loading Motor.
3. Remove the Belt, a Screw B, two Screws C, a Guide and a Screw Unit.
4. Dismount the Carriage Motor.

Note : When assembling the Belt, use care so that it may not be contaminated by grease.



● Removing the Pickup Unit

1. Remove two Screws and a Shaft.
2. Dismount the Pickup Unit.